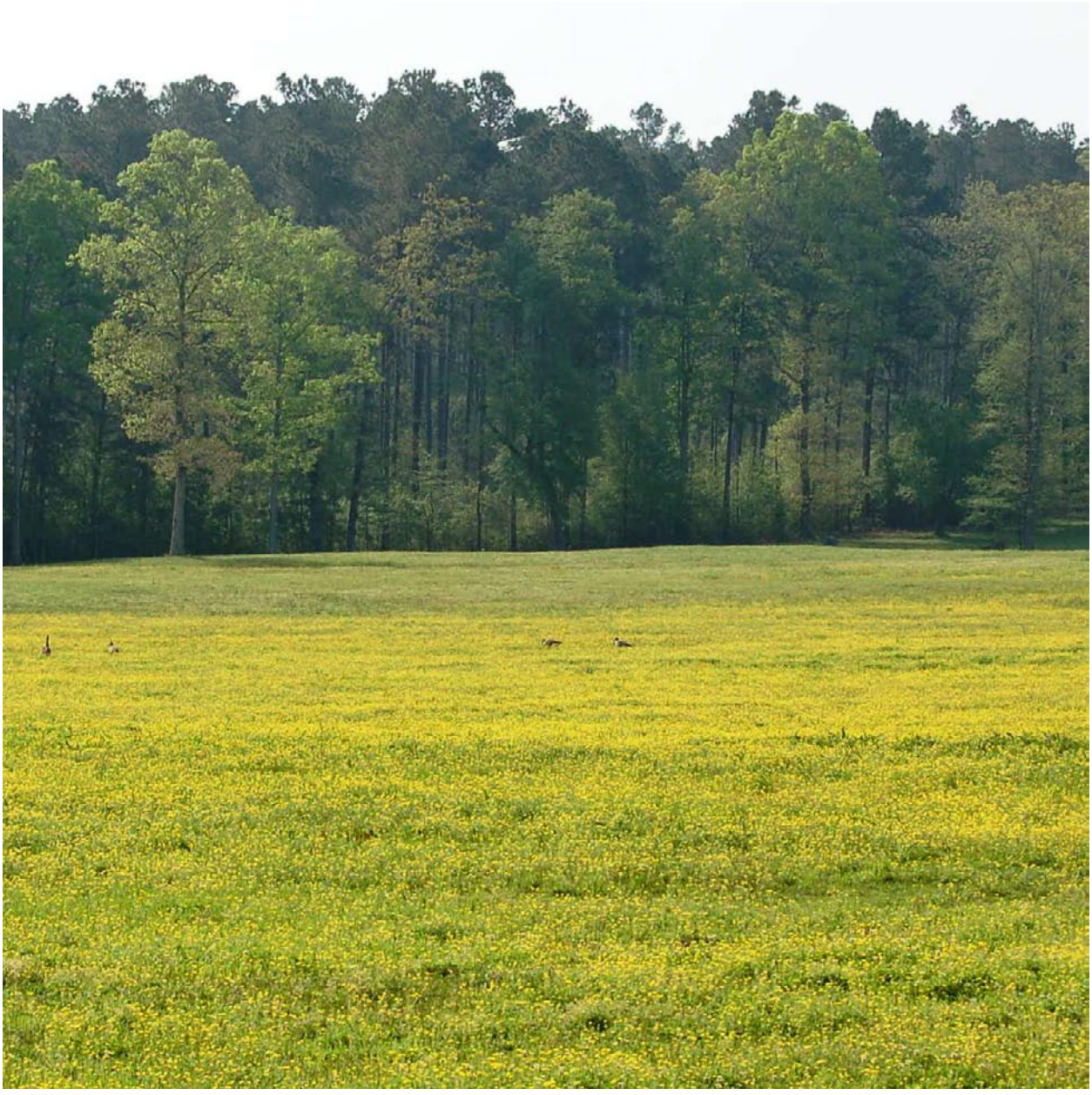
United States Department of Agriculture

In cooperation with the Arkansas Agricultural Experiment Station

NRCS

Natural Resources Conservation Service

Soil Survey of Grant County, Arkansas



How To Use This Soil Survey

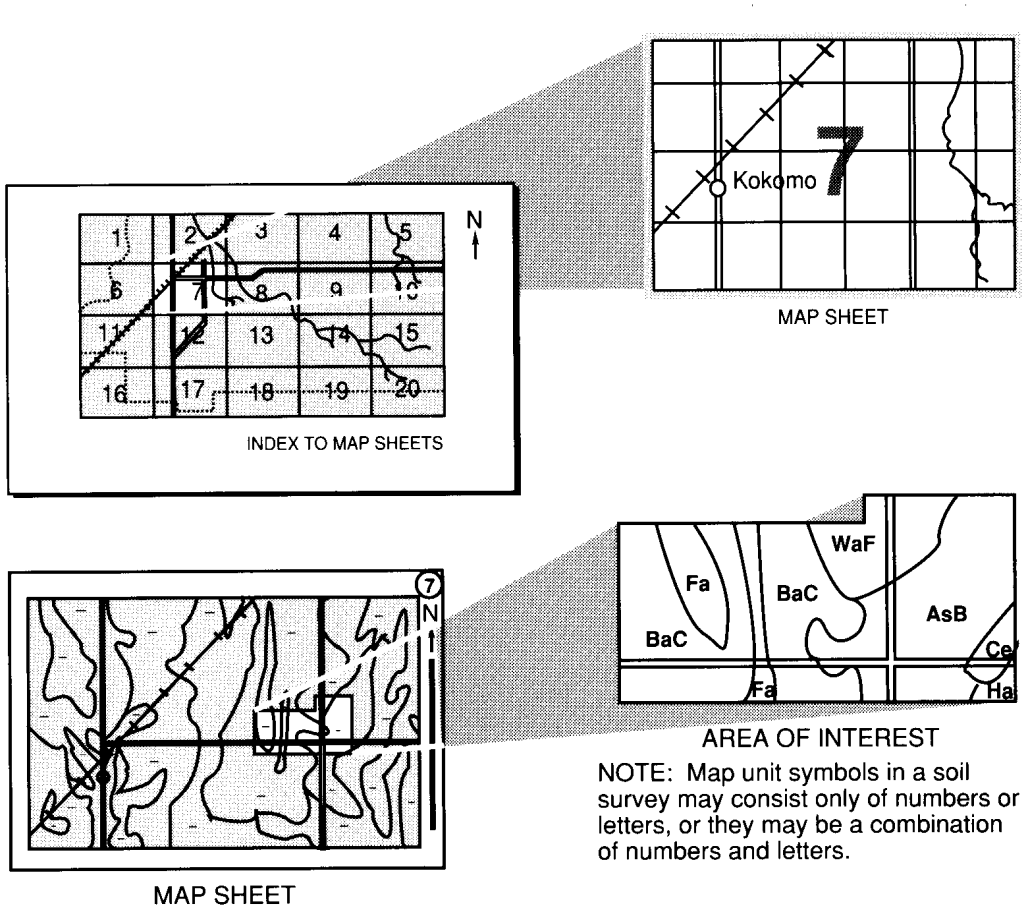
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2000. This survey was made cooperatively by the Natural Resources Conservation Service and the Arkansas Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Grant County Conservation District.

Cover: Pasture in an area of Smithton fine sandy loam, 0 to 2 percent slopes.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2008

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. Soil surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soils and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Kalven Trice
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Grant County, Arkansas

Fieldwork by Leodis Williams, Kenneth Crader, Leslie J. Glover II, and D'andre Yancey, Natural Resources Conservation Service

United States Department of Agriculture,
Natural Resources Conservation Service,
in cooperation with
the Arkansas Agricultural Experiment Station

GRANT COUNTY, the 42nd largest county in Arkansas, is in the central region of the state (fig. 1). The total area in the county is about 405,401 acres, or 633 square miles. The county is 27 miles long from east to west and 26 miles from north to south. It is bounded by Hot Springs, Jefferson, Cleveland, Saline, Pulaski, and Dallas Counties and the Saline River. In 2002, the population of Grant County was 17,242. Sheridan, the county seat, had a population of 3,872. Other communities, in decreasing order of population, are Leola (515), Tull (358), Poyen (272), and Prattsville (282).

General Nature of the County

In this section, farming, physiography, drainage, and climate in Grant County are described.

Farming

Grant County was formed in 1869 from parts of Hot Springs, Jefferson, and Saline Counties. Early settlers in Grant County were subsistence farmers. They mainly cleared and farmed small, scattered areas on gently sloping uplands. Some of the settlers farmed the better-drained flood plains along the Saline River and major streams. As roads were built and markets developed, more flood plains and uplands were cleared. Cotton, corn, small grains, and livestock were produced for cash.

In 2002, approximately 9 percent of Grant County was farmland. Between 1997 and 2002, the number of farms increased from 245 to 251. During the same period, the average size of the farms increased from 140 to 147 acres (USDC, 2004). About 90 percent of the county consists of timber tracts, primarily loblolly pine and shortleaf pine on stream terraces and uplands and secondarily hardwood species, such as oak, gum, and hickory, on flood plains. The rest of the county consists of pasture, cities, towns, transportation right-of-ways, utility facilities, homes, and industrial developments. The timber, livestock, and gravel mining industries are the most important parts of the local economy. Most of the acreage is managed for the production of pulpwood, poles, and saw logs. The remaining land is used for pasture and forage crops. A few small acreages are used for truck crops, which are also economically important in the county.

Figure 1.—Location of Grant County in Arkansas.

Physiography

The geologic deposits at the surface of Grant County consist of unconsolidated sediment laid down by water. Topographically, Grant County can be divided into two main areas: the nearly level terraces and flood plains along the Saline River and its tributaries and the nearly level to steep uplands throughout the county. The topography of the flood plains and terraces is mostly broad flats. The major soils on the terraces are Amy, Gurdon, Smithton, and Stough soils. Bibb, Guyton, Ouachita, Sardis, Una, and Urbo soils are on the flood plains along with a few high areas of moderately well drained soils. The topography of the uplands is primarily rolling to steep. A few areas in the uplands consist of flats. The major soil on these level, upland flats is Adaton silt loam, 0 to 2 percent slopes. The major soils on the rolling to steep areas are Pikeville, Rosalie, Sacul, Saffell, Sawyer, Warnock, and Wilcox soils.

Drainage

Drainage in Grant County is mainly by the Saline River and its tributaries and by Lost Creek, Hurricane Creek, and Derrieusseaux Creek, flowing from north the south. In the northeastern part of the county, Wildcat Creek and Weaver Creek flow into the Arkansas River system. The divide separating these systems is roughly a line in the northeastern part of the county just east of the Jefferson County line. Other major streams include Brush Creek, Francois Creek, Halbert Creek, Cane Creek, Simpson Creek, White Oak Creek, Steep Creek, and Johnson Creek. These streams have other numerous small tributaries throughout the county.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Leola, Arkansas, in the period 1971 to 2000. Table 2 shows probable dates of the

first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). Freeze dates in table 2 are used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

In winter, the average temperature is 44 degrees F and the average daily minimum temperature is 33 degrees. In summer, the average temperature is 80 degrees F and the average daily maximum temperature is 91 degrees.

The average annual precipitation is about 54 inches. Of this total, 26 inches, or about 48 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 10 inches. Thunderstorms occur on about 57 days each year, and most occur in summer. Average seasonal snowfall is about 4 inches. On the average, 1 day a year has at least 1 inch of snow on the ground, but the number of such days varies greatly from year to year.

Grant County has long, hot summers and rather cool winters. An occasional cold wave brings near-freezing or sub-freezing temperatures but seldom much snow. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation falls mainly as afternoon thunderstorms and is adequate for all crops. Severe local storms, including tornadoes, strike in or near the area occasionally. The storms are of short duration, and the damage they cause is variable and spotty.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic

classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date. After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Detailed Soil Map Units

Map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale of mapping used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. Contrasting components are mentioned in the map unit descriptions where present. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit does not diminish the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas. An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit. Soils that have profiles which are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly

indicates a feature that affects use or management. For example, Sacul gravelly fine sandy loam, 1 to 8 percent slopes, is one of several phases in the Sacul series.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example. Miscellaneous areas are shown on the soil maps. Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas. The “Use and Management of Soils” section describes potentials and limitations of the soils for specific land uses.

1B—Adaton silt loam, 0 to 2 percent slopes

Map Unit Composition

Major component
Adaton and similar soils: 78 percent

Contrasting inclusions
Sawyer soils: 12 percent
Wilcox soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Depressions on uplands
Parent material: Silty marine deposits
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.42 micrometers/sec)
Available water capacity: Very high (about 0.20 in/in)
Shrink-swell potential: Moderate (about 4.5 percent linear extensibility)
Depth to seasonal water saturation: About 0 to 6 inches
Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 3w

2B—Amy silt loam, 0 to 2 percent slopes

Map Unit Composition

Major component
Amy and similar soils: 90 percent

Contrasting inclusions
Gurdon soils: 5 percent
Smithton soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Stream terraces
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.19 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 0 to 12 inches (fig. 2)

Figure 2.—Seasonal high water table at the surface in an area of Amy silt loam, 0 to 2 percent slopes.

Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 3w

3A—Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major component
Bibb and similar soils: 95 percent

Contrasting inclusions
Guyton soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains
Parent material: Stratified loamy and sandy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.00 micrometers/sec)
Available water capacity: Moderate (about 0.16 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Flooding: Frequent
Depth to seasonal water saturation: About 6 to 12 inches
Type of seasonal water saturation: Apparent

Runoff class: Negligible
Land capability classification, nonirrigated: 5w

4—Dam

Map Unit Composition

Major component
Dam: 100 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Earthen-dam artificial levee
Depth to seasonal water saturation: Greater than 6 feet

4B—Gurdon silt loam, 1 to 3 percent slopes

Map Unit Composition

Major component
Gurdon and similar soils: 90 percent

Contrasting inclusions
Amy soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Terraces
Parent material: Silty alluvium
Slope: 1 to 3 percent
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.23 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 12 to 24 inches
Type of seasonal water saturation: Apparent
Runoff class: Low
Land capability classification, nonirrigated: 2e

5A—Guyton silt loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major component
Guyton and similar soils: 85 percent

Contrasting inclusions
Una soils: 5 percent
Bibb soils: 5 percent
Sardis soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains
Parent material: Loamy alluvium

Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.21 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Flooding: Frequent (fig. 3)
Depth to seasonal water saturation: About 0 to 18 inches
Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 5w

6B—Ouachita silt loam, 0 to 2 percent slopes, frequently flooded

Map Unit Composition

Major component
Ouachita and similar soils: 80 percent

Contrasting inclusions
Urbo soils: 7 percent
Guyton soils: 5 percent
Una soils: 5 percent
Bibb soils: 3 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains and natural levees
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 1.40 micrometers/sec)
Available water capacity: High (about 0.18 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Flooding: Frequent
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Negligible
Land capability classification, nonirrigated: 5w

7C—Pikeville fine sandy loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Pikeville and similar soils: 90 percent

Contrasting inclusions
Warnock soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and gravelly marine deposits
Slope: 1 to 8 percent
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.23 micrometers/sec)

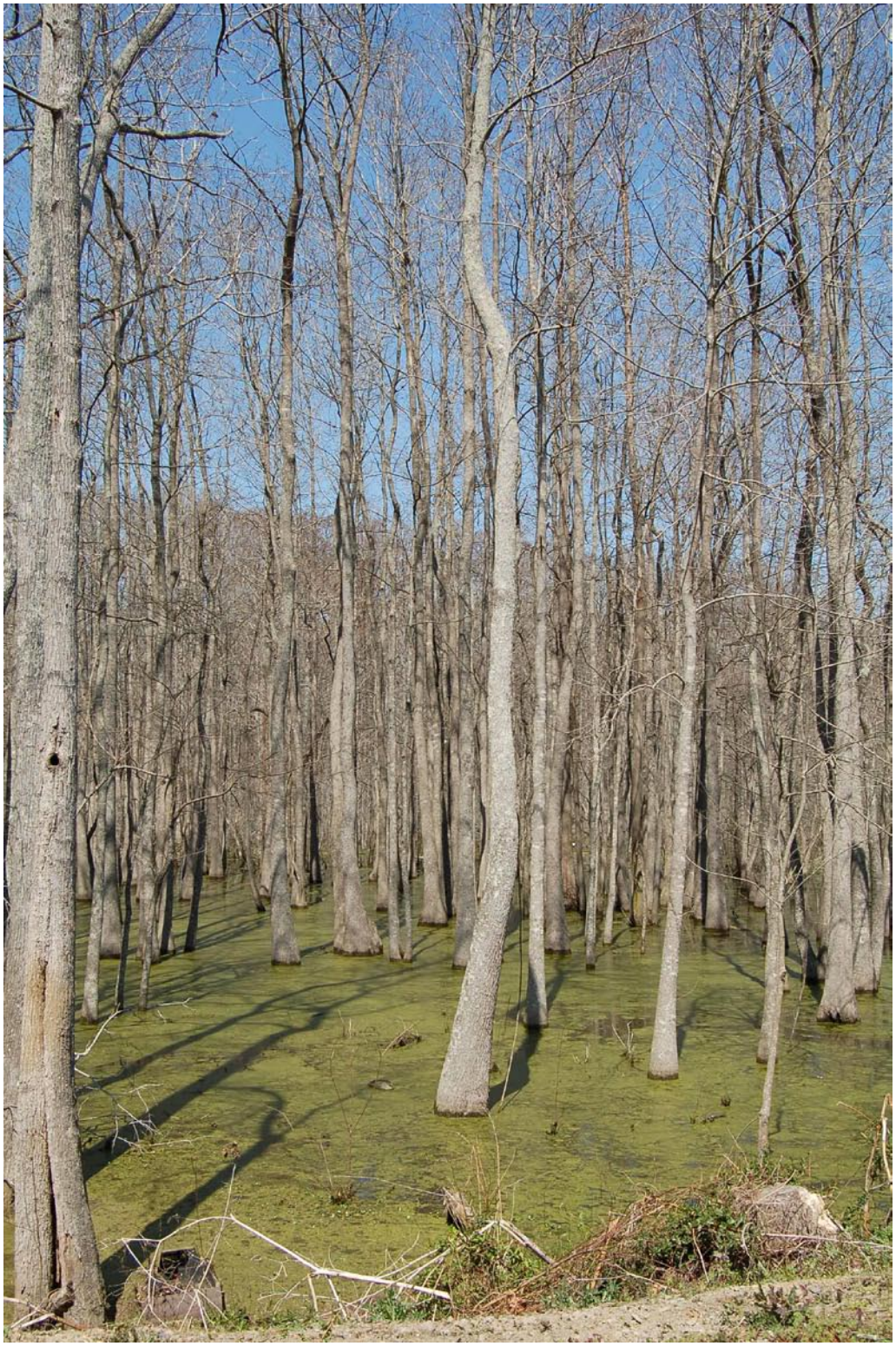


Figure 3.—Backswamp in an area of Guyton silt loam, 0 to 1 percent slopes, frequently flooded.

Available water capacity: Low (about 0.13 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: Greater than 6 feet

Runoff class: Low
Land capability classification, nonirrigated: 4e

8—Pits, gravel

Map Unit Composition

Major component
Pits: 100 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Borrow pits
Slope: 3 to 60 percent
Depth to seasonal water saturation: Greater than 6 feet
Land capability classification, nonirrigated: 8

9C—Rosalie loamy fine sand, 1 to 8 percent slopes

Map Unit Composition

Major component
Rosalie and similar soils: 90 percent

Contrasting inclusions
Sacul soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and sandy marine deposits
Slope: 1 to 8 percent
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.23 micrometers/sec)
Available water capacity: Moderate (about 0.16 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: Low
Land capability classification, nonirrigated: 3s

10C—Sacul fine sandy loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 85 percent (fig. 4)

Contrasting inclusions
Rosalie soils: 5 percent
Sawyer soils: 5 percent
Warnock soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills

Figure 4.—A pine plantation in an area of Sacul fine sandy loam, 1 to 8 percent slopes.

Parent material: Loamy and clayey marine deposits
Slope: 1 to 8 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 4e

10D—Sacul fine sandy loam, 8 to 15 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 80 percent

Contrasting inclusions
Sawyer soils: 10 percent
Warnock soils: 5 percent
Wilcox soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 8 to 15 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)

Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 6e

10E—Sacul fine sandy loam, 15 to 35 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 80 percent

Contrasting inclusions
Sawyer soils: 5 percent
Warnock soils: 5 percent
Wilcox soils: 5 percent
Pikeville soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 15 to 35 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 7e

11C—Sacul gravelly fine sandy loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 90 percent

Contrasting inclusions
Saffell soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 1 to 8 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 4e

11D—Sacul gravelly fine sandy loam, 8 to 15 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 90 percent

Contrasting inclusions
Saffell soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 8 to 15 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 6e

11E—Sacul gravelly fine sandy loam, 15 to 35 percent slopes

Map Unit Composition

Major component
Sacul and similar soils: 90 percent

Contrasting inclusions
Saffell soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 15 to 35 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.17 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 6e

12C—Saffell gravelly fine sandy loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Saffell and similar soils: 90 percent

Contrasting inclusions
Sacul soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and gravelly marine deposits
Slope: 1 to 8 percent
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.00 micrometers/sec)
Available water capacity: Low (about 0.09 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Land capability classification, nonirrigated: 4e

12D—Saffell gravelly fine sandy loam, 8 to 15 percent slopes

Map Unit Composition

Major component
Saffell and similar soils: 90 percent

Contrasting inclusions
Sacul soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and gravelly marine deposits
Slope: 8 to 15 percent
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.00 micrometers/sec)
Available water capacity: Low (about 0.09 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Land capability classification, nonirrigated: 6e

12E—Saffell gravelly fine sandy loam, 15 to 35 percent slopes

Map Unit Composition

Major component
Saffell and similar soils: 90 percent

Contrasting inclusions
Sacul soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and gravelly marine deposits
Slope: 15 to 35 percent

Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.00 micrometers/sec)
Available water capacity: Low (about 0.09 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: High
Land capability classification, nonirrigated: 6e

13A—Sardis silt loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major component
Sardis and similar soils: 75 percent

Contrasting inclusions
Guyton soils: 10 percent
Una soils: 10 percent
Urbo soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.23 micrometers/sec)
Available water capacity: High (about 0.20 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Flooding: Frequent
Depth to seasonal water saturation: About 18 to 36 inches
Type of seasonal water saturation: Apparent
Runoff class: Low
Land capability classification, nonirrigated: 5w

14C—Sawyer very fine sandy loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Sawyer and similar soils: 80 percent

Contrasting inclusions
Wilcox soils: 10 percent
Stough soils: 5 percent
Sacul soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy and clayey marine deposits
Slope: 1 to 8 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low (about 0.42 micrometers/sec)
Available water capacity: High (about 0.18 in/in)

Shrink-swell potential: Moderate (about 4.5 percent linear extensibility)
Depth to seasonal water saturation: About 18 to 30 inches
Type of seasonal water saturation: Perched
Runoff class: Medium
Land capability classification, nonirrigated: 3e

15B—Smithton fine sandy loam, 0 to 2 percent slopes

Map Unit Composition

Major component
Smithton and similar soils: 90 percent

Contrasting inclusions
Amy soils: 5 percent
Stough soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high (about 1.41 micrometers/sec)
Available water capacity: Moderate (about 0.16 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 0 to 12 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 3w

16B—Stough fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Major component
Stough and similar soils: 85 percent

Contrasting inclusions
Smithton soils: 10 percent
Sawyer soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Terraces and broad uplands
Parent material: Loamy marine and fluvial deposits
Slope: 1 to 3 percent
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high (about 1.41 micrometers/sec)
Available water capacity: Moderate (about 0.12 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 12 to 18 inches
Type of seasonal water saturation: Perched
Runoff class: Medium
Land capability classification, nonirrigated: 2w

17A—Una silty clay loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major component
Una, frequently flooded, and similar soils: 75 percent

Contrasting inclusions
Una, ponded, soils: 10 percent
Guyton soils: 5 percent
Sardis soils: 5 percent
Urbo soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains
Parent material: Clayey alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.01 micrometers/sec)
Available water capacity: High (about 0.18 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Flooding: Frequent
Depth to seasonal water saturation: About 6 to 12 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 5w

18B—Urbo silty clay loam, 0 to 2 percent slopes, frequently flooded

Map Unit Composition

Major component
Urbo and similar soils: 84 percent

Contrasting inclusions
Guyton soils: 5 percent
Una soils: 5 percent
Ouachita soils: 3 percent
Sardis soils: 3 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Flood plains
Parent material: Clayey alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.01 micrometers/sec)
Available water capacity: High (about 0.19 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Flooding: Frequent
Depth to seasonal water saturation: About 12 to 24 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 5w

19C—Warnock fine sandy loam, 1 to 7 percent slopes

Map Unit Composition

Major component
Warnock and similar soils: 80 percent

Contrasting inclusions
Pikeville soils: 10 percent
Stough soils: 5 percent
Sacul soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy, marine deposits
Slope: 1 to 7 percent
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high (about 4.23 micrometers/sec)
Available water capacity: Moderate (about 0.15 in/in)
Shrink-swell potential: Low (about 1.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: Low
Land capability classification, nonirrigated: 3e

20—Water

Map Unit Composition

Major component
Water: 100 percent

21C—Wilcox silty clay loam, 1 to 8 percent slopes

Map Unit Composition

Major component
Wilcox and similar soils: 85 percent

Contrasting inclusions
Sawyer soils: 10 percent
Sacul soils: 5 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Clayey marine sediments over shale
Slope: 1 to 8 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.01 micrometers/sec)
Available water capacity: High (about 0.19 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: Medium
Land capability classification, nonirrigated: 3e

21D—Wilcox silty clay loam, 8 to 15 percent slopes

Map Unit Composition

Major component
Wilcox and similar soils: 90 percent

Contrasting inclusions
Sacul soils: 10 percent

Major Component Description

Major land resource area: 133B—Western Coastal Plain
Landform: Hills
Parent material: Loamy marine deposits overlying shale
Slope: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Low (about 0.01 micrometers/sec)
Available water capacity: High (about 0.19 in/in)
Shrink-swell potential: High (about 7.5 percent linear extensibility)
Depth to seasonal water saturation: About 24 to 48 inches
Type of seasonal water saturation: Apparent
Runoff class: High
Land capability classification, nonirrigated: 6e

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively eroded or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 176,345 acres in the survey area, or nearly 43.5 percent of the total acreage, meets the soil requirements for prime farmland. A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are Adaton silt loam, 0 to 2 percent slopes; Amy silt loam, 0 to 2 percent slopes; Gurdon silt loam, 1 to 3 percent slopes; Pikeville fine sandy loam, 1 to 8 percent slopes; Smithton fine sandy loam, 0 to 2 percent slopes; Stough fine sandy loam, 1 to 3 percent slopes; and Warnock fine sandy loam, 1 to 7 percent slopes (fig. 5). The extent of these soils is listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The locations of these soils are shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Figure 5.—Pasture in an area of Warnock fine sandy loam, 1 to 7 percent slopes.

Use and Management of Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses. In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops, pastures, and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of gravel, sand, roadfill, reclamation material, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation. Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numeric.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are not *limited, somewhat limited,* and *very limited.* The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor. Not rated* indicates that data was not recorded or estimated.

Numeric Ratings

Numeric ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature is not a limitation (0.00)

and the point at which it has the greatest negative impact on the specified practice (1.00). Numeric ratings are compiled using a system of mathematics called “fuzzy logic,” which addresses how inclusive a member is to a group (Zadeh, 1965).

When combined with the rating class terms, the numeric ratings give an indication of the potential for management practices. Limitations are listed in order from the most limiting to the least limiting.

Crops and Pasture

In this section, the system of land capability classification used by the Natural Resources Conservation Service is explained and the estimated yields of the main hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. The capability classification of each map unit in the survey area is given in table 6.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA–SCS, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,*

used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. The soils in class 5 are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation. Class 5 contains only the subclasses indicated by *w, s,* or *c.*

The capability classification of each map unit is given in the section “Detailed Soil Map Units” and in table 6.

Yields per Acre

The average yields per acre that can be expected from the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change. The unit used to express potential yields is the Animal Unit Month (AUM), which is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Crops other than those shown in the table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Forestland Productivity and Management

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

Forestland Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and co-dominant trees of a given species attained in 50 years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the

"National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet at http://soils.usda.gov.

The *volume of wood fiber,* a number, is the yield likely to be produced by the most important tree species. This number, expressed in cubic feet (Doyle Rule) per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest. The mixing of the A and E horizons during mechanical site preparation may affect productivity, particularly in soils on uplands and terraces.

Forestland Management

In tables 8 through 12, interpretive ratings are given for various aspects of forestland management. Rating class terms indicate the degree to which the soils are suited to a specified forestland management practice. The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet at http://soils.usda.gov.

Ratings in the tables are both verbal and numerical. Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are slight, moderate, severe, and very severe. Terms for the suitability classes are well suited, moderately suited, poorly suited, and unsuited. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

Table 8: Forestland Planting and Harvesting

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Table 9: Forestland Site Preparation

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Table 10: Hazard of Erosion and Suitability for Roads on Forestland

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Table 11: Haul Roads, Log Landings, and Soil Rutting on Forestland

For *limitations affecting construction of haul roads and log landings,* the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The

hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Table 12: Damage by Fire and Seedling Mortality on Forestland

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Site Development

The soils of the survey area are rated in tables 13 and 14 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Ratings in the tables are both verbal and numerical. Rating classes are expressed in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use. Terms for the limitation classes are not limited, somewhat limited, and very limited.

The information in the tables can be supplemented by other information in this survey, for example, interpretations for building site development, construction and excavating materials, sanitary facilities, and water management.

Table 13: Camp Areas, Picnic Areas, and Playgrounds

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the

growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Table 14: Paths, Trails, and Golf Fairways

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

In tables 15a through 15d, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat (fig. 6). The elements of wildlife habitat are described in the following paragraphs. Selection of appropriate species should be made from a list of locally adapted species.

The ratings in the tables are both verbal and numeric. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the element or kind of habitat. *Not limited* indicates that the soil has features that are very favorable for the element or kind of habitat. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by

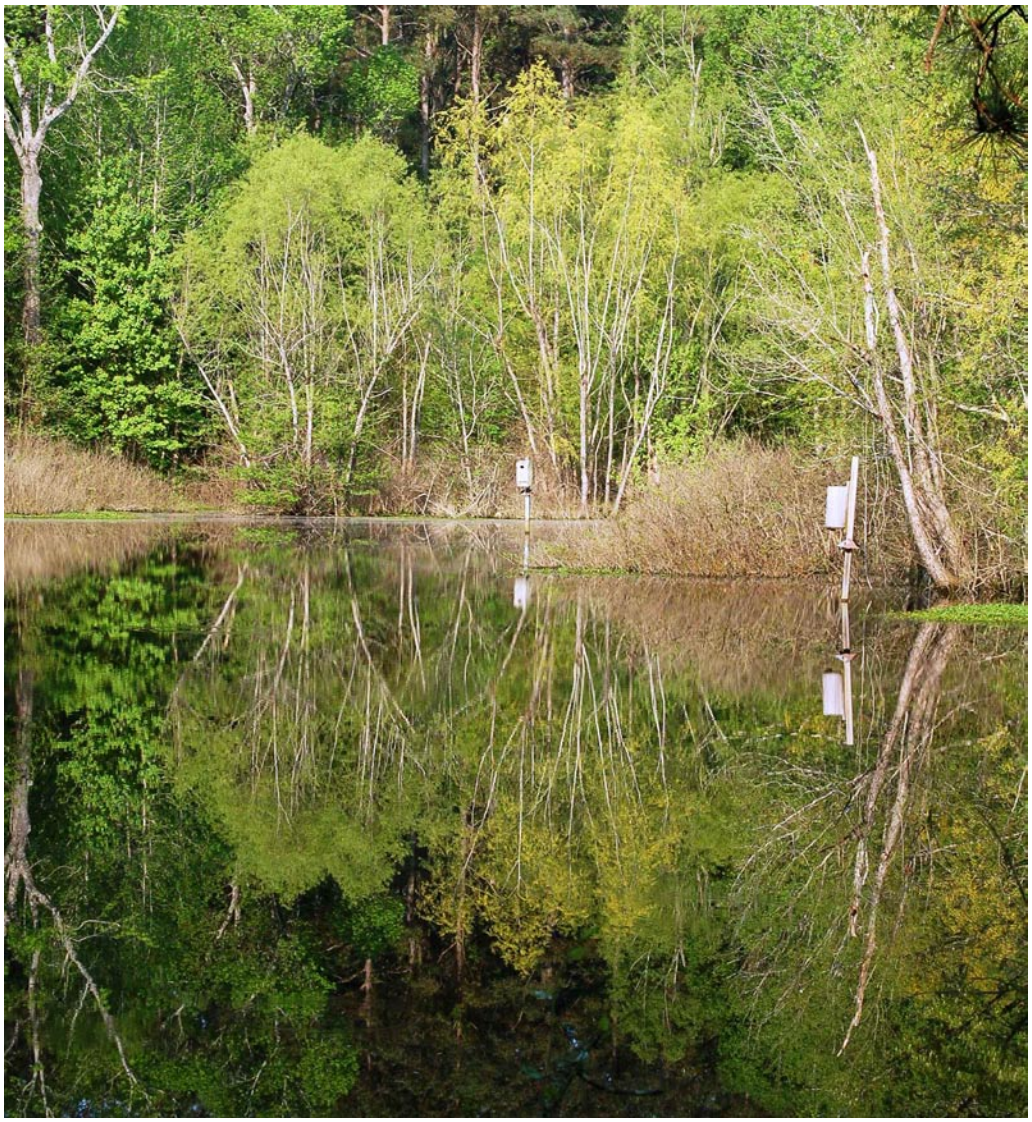


Figure 6.— Wildlife habitat in a depressional area of Guyton silt loam, 0 to 2 percent slopes, frequently flooded.

special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Creating, improving, or maintaining habitat is impractical or impossible.

Numeric ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature is not a limitation (0.00) and the point at which it has the greatest negative impact on the specified practice (1.00).

Table 15a: Wildlife Habitat (Part 1)

Grain and seed crops for food and cover (irrigated and nonirrigated) are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations.

Domestic grasses and legumes for food and cover (irrigated and nonirrigated) are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations.

Table 15b: Wildlife Habitat (Part 2)

Irrigated freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for the temporary or permanent restoration of wetland features. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction.

Upland wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations.

Upland shrubs and vines are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture.

Table 15c: Wildlife Habitat (Part 4)

Upland deciduous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness.

Ratings for *upland coniferous trees* indicate the limitation of the soils as a growth medium for a diverse upland coniferous tree community that meets specific local habitat requirements for targeted and nontargeted wildlife species. Typically, coniferous trees can subsist under harsher soil conditions than geographically related hardwoods. The soil properties and features that affect the ability of upland coniferous trees to thrive include available water capacity, depth to a high water table, depth to bedrock or a cemented pan, and soil moisture and temperature regimes. Pine and eastern redcedar are examples of coniferous plants.

Upland mixed deciduous and coniferous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds, and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness.

Table 15d: Wildlife Habitat (Part 4)

Riparian herbaceous plants are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones.

Riparian shrubs, vines, and trees are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones.

Freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction and excavating materials, water management, and agricultural waste management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 16 and 17 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numeric. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site

development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numeric ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature is not a limitation (0.00) and the point at which it has the greatest negative impact on the specified practice (1.00).

Table 16: Dwellings and Small Commercial Buildings

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Table 17: Roads and Streets, Shallow Excavations, and Lawns and Landscaping

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfide containing materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 18 and 19 show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings in the tables are both verbal and numeric. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Table 18: Sewage Disposal

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in down slope areas. Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth

to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Table 19: Landfills

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, non-rippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill. Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse. The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill,* solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan. Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion. Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area. After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction and Excavating Materials

The soils of the survey area are rated in tables 20 and 21 as a source of reclamation material, roadfill, topsoil, gravel, and sand. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

The soils are rated *good, fair,* or *poor* as potential sources of gravel and sand. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of gravel or sand. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Table 20: Source of Reclamation Material, Roadfill, and Topsoil

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments. The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread. The ratings are based on the amount of suitable

material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material. The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Table 21: Source of Gravel and Sand

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 21, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of gravel or sand are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains gravel or sand, the soil is considered a likely source regardless of thickness. The assumption is that the gravel or sand layer below the depth of observation exceeds the minimum thickness.

Water Management

The soils of the survey area are rated in table 22 based on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which it is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction. The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties. Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Tables 23 and 24 show the degree and kind of soil limitations affecting the application and treatment of agricultural waste. Agricultural waste management systems include systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops. They include application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation. Treatment of wastewater by slow and rapid infiltration processes is also described in this section.

The ratings in the tables are both verbal and numeric. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numeric ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature is not a limitation (0.00) and the point at which it has the greatest negative impact on the specified practice (1.00).

Table 23: Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater

Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it has a high content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly has a very low content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

Land *application of manure and food-processing waste* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Land *application of municipal sewage sludge* not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and that have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

Table 24: Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment

Rapid infiltration of wastewater is a process that applies wastewater in a level basin at a rate of 4 to 120 inches per week. The water percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution. The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

Slow rate treatment of wastewater is a process that applies wastewater to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evaporation and transpiration. The applied water generally is not allowed to run off the surface. Water logging is prevented either through control of the application rate or through the use of tile drains, or both. The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations; verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Properties

Table 25 gives estimates of the engineering classification and of the range of properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil

that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Soil Properties

Table 26 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is *low* if the soil has a linear extensibility of less than 3 percent; *moderate* if 3 to 6 percent; *high* if 6 to 9 percent; and *very high* if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor Kw (formerly K factor) indicates the susceptibility of a soil to sheet and rill erosion by water. Factor Kw is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Factor Kw is adjusted for the effect of rock fragments. Values of Kw

range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Factor Kf is one of the factors used in the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet at http://soils.usda.gov/.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 27 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Soil Features

Table 28 gives estimates of various soil features used in land use planning that involves engineering considerations, including depth to restrictive layer and risk of corrosion.

Depth to a *restrictive layer* is shown for all soils that are underlain by a restrictive layer at a depth of 5 to 6 feet or less. For some soils the limited depth to a restrictive layer is part of the definition of the series. The depths shown are based on measurements made in many soil borings and on other observations during soil mapping. The kind of restrictive layer (fragipan, bedrock, densic, lithic, or paralithic contact) and its hardness determines the ease of excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion

of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Water Features

Table 29 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7

to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Physical and Chemical Analyses of Selected Soils

The results of physical and chemical analysis of selected typical pedons in the survey area are given in tables 30a through 30d. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. Full characterization was conducted on typical pedons of Stough and Warnock soils, and individual horizons were sampled for Adaton and Una soils. These typical pedons are described in the section “Soil Series and Their Morphology.” The soils were analyzed by the National Soil Survey Laboratory.

Most determinations, except those for grain-size analysis and bulk density, were made on soil materials smaller than 2 millimeters in diameter. Measurements that were reported as percent or quantity of unit weight were calculated on an oven dry basis. The methods used in obtaining the data are described on the Internet at http://soils.usda.gov/.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 31 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in sol. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquult (*Aqu,* meaning wet conditions, plus *ult,* from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Paleaquults (*Pale,* meaning old development, plus *aquult,* the suborder of the Ultisols that has aquic properties).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Paleaquults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Smithton series. The soils of the Smithton series are coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each

series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999), “Keys to Soil Taxonomy” (Soil Survey Staff, 1998), and “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002). Unless otherwise indicated, colors in the descriptions are for moist soil and broken faced peds. Following the pedon description is the range of important characteristics of the soils in the series. The map units of each soil series are described in the section “Detailed Soil Map Units.”

Adaton Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Depressions on uplands
Parent material: Silty, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Low
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 2 percent
Taxonomic classification: Fine-silty, mixed, active, thermic Typic Endoaqualfs

Associated Soils

The Adaton series is commonly associated with Pikeville, Sacul, Sawyer, Stough, Warnock, and Wilcox soils.

Typical Pedon

Adaton silt loam in a wooded area of Adaton silt loam, 0 to 2 percent slopes; Grant County, Arkansas; SE¼SE¼NW¼ sec. 29, T. 5 S., R. 12 W.; lat. 34 degrees 15 minutes 21.60 seconds N. and long. 92 degrees 19 minutes 44.20 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2, broken face) silt loam; weak medium granular structure; friable, many fine roots throughout; common fine low-continuity irregular pores; strongly acid; clear smooth boundary.

Btg1—3 to 25 inches; gray (10YR 6/1, broken face) silty clay loam; weak fine subangular blocky structure; friable; many fine roots throughout; 10 percent patchy faint clay films on faces of peds; 3 percent medium prominent reddish yellow (7.5YR 6/8) and yellowish brown (10YR 5/8) iron-manganese nodules throughout; very strongly acid; clear wavy boundary.

Btg2—25 to 45 inches; gray (10YR 6/1, broken face) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 10 percent patchy faint clay films on faces of peds; 5 percent medium prominent yellowish brown (10YR 5/8) and brownish yellow (10YR 6/8) masses of oxidized iron throughout; very strongly acid; gradual wavy boundary.

Btg3—45 to 60 inches; gray (10YR 6/1, broken face) silty clay loam; 32 percent clay, 17 percent sand, and 52 percent silt; moderate medium subangular blocky structure; firm, moderately sticky and moderately plastic; few fine roots throughout; 10 percent patchy faint clay films on faces of peds; 5 percent medium prominent light yellowish brown (2.5Y 6/4) and reddish yellow (7.5YR 6/8) masses of oxidized iron throughout; gradual wavy boundary.

Btg4—60 to 80 inches; light brownish gray (2.5Y 6/2, broken face) silty clay; moderate medium subangular blocky structure; very firm, moderately sticky and moderately plastic; 10 percent patchy faint clay films on faces of peds; 1 percent fine

prominent reddish yellow (7.5YR 6/8) masses of oxidized iron throughout; very strongly acid.

Range in Characteristics

A horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 4
Texture—silt loam
Reaction—moderately acid to very strongly acid

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam, silty clay loam, silty clay, or clay
Color of redoximorphic features—shades of yellow or brown
Reaction—strongly acid or very strongly acid

BCg and Cg horizons (where present):

Color—hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silty clay loam, silty clay, or clay
Color of redoximorphic features—shades of brown or yellow
Reaction—strongly acid or very strongly acid

Amy Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Stream terraces
Parent material: Silty alluvium
Geologic age of the parent material: Pleistocene
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Low
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent
Taxonomic classification: Fine-silty, siliceous, semiactive, thermic Typic Endoaquults

Associated Soils

The Amy series is commonly associated with Bowie, Gurdon, Guyton, Ouachita, Smithton, and Stough soils.

Typical Pedon

Amy silt loam in an area of Amy silt loam, 0 to 2 percent slopes, with a grass/herbaceous cover; Grant County, Arkansas; NE¼NE¼SE¼ sec. 12, T. 7 S., R. 13 W.; lat. 34 degrees 7 minutes 22.70 seconds N. and long. 92 degrees 21 minutes 43.90 seconds W.

A—0 to 4 inches; grayish brown (10YR 5/2, broken face) silt loam; weak fine granular structure; friable; common medium roots throughout; 1 percent fine faint irregular dark grayish brown (10YR 4/2) masses of oxidized iron throughout; strongly acid; abrupt smooth boundary.

Eg—4 to 6 inches; light brownish gray (10YR 6/2, broken face) silt loam; weak medium subangular blocky structure; friable; few medium roots throughout; 1 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout; very strongly acid; clear wavy boundary.

Btg1—6 to 21 inches; gray (10YR 6/1, broken face) silt loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 5 percent continuous prominent light gray (10YR 7/1) silt coats on faces of peds and 55 percent patchy faint clay films on faces of peds; 2 percent medium prominent

irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout; very strongly acid; clear smooth boundary.

Btg2—21 to 40 inches; gray (10YR 6/1, broken face) silt loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 2 percent continuous prominent light gray (10YR 7/1) silt coats on faces of peds and 55 percent patchy faint clay films on faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of oxidized iron throughout; very strongly acid; clear smooth boundary.

Btg3—40 to 55 inches; gray (10YR 6/1, broken face) silty clay loam; moderate medium subangular blocky structure; firm; 55 percent patchy faint clay films on faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/6) and reddish yellow (7.5YR 6/8) masses of oxidized iron throughout; very strongly acid; gradual wavy boundary.

Cg—55 to 80 inches; gray (10YR 6/1, broken face) silty clay loam; massive; firm; 10 percent medium prominent irregular reddish yellow (7.5YR 6/8) and light olive brown (2.5Y 5/6) masses of oxidized iron throughout; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 40 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2
Texture—silt loam
Reaction—extremely acid to strongly acid

Eg horizon:
Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2
Texture—silt loam, very fine sandy loam, or loam
Reaction—extremely acid to strongly acid

Btg horizon:
Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2
Texture—silt loam or silty clay loam
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of brown, yellow, or gray

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2
Texture—silty clay loam, silt loam, or loam
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of brown, yellow, and/or gray

Bibb Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains
Parent material: Stratified loamy and sandy alluvium
Geologic age of the parent material: Holocene
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent
Taxonomic classification: Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

Associated Soils

The Bibb series is commonly associated with Guyton, Ouachita, Sacul, Sardis, Sawyer, Smithton, and Warnock soils.

Typical Pedon

Bibb fine sandy loam in a wooded area of Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded; Grant County, Arkansas; NE1/4NE1/4NW1/4 sec. 5, T. 6 S., R. 15 W.; lat. 34 degrees 14 minutes 19.10 seconds N. and long. 92 degrees 38 minutes 55.20 seconds W.

A—0 to 5 inches; brown (10YR 4/3, broken face) fine sandy loam; weak fine granular structure; friable; many fine and many medium roots; very strongly acid; abrupt wavy boundary.

Ag—5 to 13 inches; dark gray (10YR 4/1, broken face) fine sandy loam; weak fine granular structure; friable; few fine and few medium roots; very strongly acid; clear wavy boundary.

Cg1—13 to 22 inches; gray (10YR 6/1, broken face) sandy loam; massive; friable; few fine and few medium roots; 5 percent medium prominent irregular strong brown (7.5YR 5/8 and 5/6) masses of oxidized iron throughout with clear boundaries; noncemented iron-manganese concretions; very strongly acid; clear wavy boundary.

Cg2—22 to 33 inches; gray (10YR 6/1, broken face) loam; massive; loose; 10 percent medium prominent irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout with clear boundaries; noncemented iron-manganese concretions; extremely acid; clear wavy boundary.

Cg3—33 to 80 inches; gray (10YR 6/1, broken face) stratified fine sandy loam to loam to silt loam; massive; loose; 2 percent fine prominent brownish yellow (10YR 6/6) and yellowish brown (10YR 5/6) masses of oxidized iron throughout; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6); extremely acid.

Range in Characteristics

A horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 4
Texture—fine sandy loam
Reaction—extremely acid to strongly acid

Ag horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 1 or 2
Texture—fine sandy loam or sandy loam
Color of redoximorphic features—shades of brown and yellow
Reaction—extremely acid to strongly acid

Cg horizon:

Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2; or value of 4 or 5 and chroma of 1
Texture—sandy loam, very fine sandy loam, loam, silt loam, or loamy fine sand or stratified in these textures
Color of redoximorphic features—shades of brown or yellow
Reaction—extremely acid to strongly acid

Gurdon Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Terraces
Position on terraces: Treads

Parent material: Silty alluvium
Geologic age of the parent material: Pleistocene
Drainage class: Somewhat poorly drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 3 percent
Taxonomic classification: Coarse-silty, siliceous, semiactive, thermic Aquic Paleudults

Associated Soils

The Gurdon series is commonly associated with Amy, Guyton, Sardis, Smithton, Stough, and Una soils.

Typical Pedon

Gurdon silt loam in a wooded area of Gurdon silt loam, 1 to 3 percent slopes; Grant County, Arkansas; SW1/4NE1/4SW1/4 sec. 30, T. 6 S., R. 13 W.; lat. 34 degrees 9 minutes 47.00 seconds N. and long. 92 degrees 27 minutes 40.40 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2, broken face) silt loam; weak fine granular structure; friable; many fine roots throughout; strongly acid; clear smooth boundary.

BA—4 to 9 inches; yellowish brown (10YR 5/4, broken face) silt loam; weak medium subangular blocky structure; friable; many fine roots throughout; 5 percent fine faint irregular light yellowish brown (10YR 6/4) masses of oxidized iron throughout with clear boundaries; 5 percent fine distinct irregular weakly cemented dark yellowish brown (10YR 4/4) durinodes with clear boundaries throughout; very strongly acid; clear smooth boundary.

Bt—9 to 23 inches; yellowish brown (10YR 5/6, broken face) silt loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 50 percent continuous distinct yellowish brown (10YR 5/8) clay films on faces of peds; 10 percent medium prominent irregular light brownish gray (10YR 6/2) iron depletions throughout with clear boundaries; very strongly acid; gradual smooth boundary.

Btx1—23 to 42 inches; yellowish brown (10YR 5/6, broken face) silt loam; moderate medium subangular blocky structure; firm; few fine roots throughout; 50 percent continuous distinct yellowish brown (10YR 5/8) clay films on faces of peds; 15 percent medium prominent irregular gray (10YR 6/1) iron depletions throughout with clear boundaries; 15 percent brittle and compact; very strongly acid; gradual smooth boundary.

Btx2—42 to 55 inches; yellowish brown (10YR 5/6, broken face) silt loam; moderate medium subangular blocky structure; firm; 50 percent continuous distinct yellowish brown (10YR 5/8) clay films on faces of peds; 15 percent medium prominent irregular light gray (10YR 7/1) iron depletions throughout with clear boundaries; 20 percent brittle and compact; very strongly acid; gradual smooth boundary.

Btg—55 to 80 inches; light gray (10YR 6/1, broken face) silt loam; moderate medium subangular blocky structure; firm; 20 percent continuous prominent yellowish brown (10YR 5/8) clay films on faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 to 72 inches or more
Depth to bedrock: Greater than 60 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam
Reaction—extremely acid to moderately acid

E horizon (where present):
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—silt loam or very fine sandy loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 8
Texture—silt loam, loam, or silty clay loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 8; or variegated in shades of brown, yellow, and gray
Texture—silt loam, loam, or silty clay loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

*B´*t horizon (where present):
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6, or variegated in shades of brown, yellow, and gray
Texture—silt loam, loam, or silty clay loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

Btg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2; or variegated in shades of brown, yellow, and gray
Texture—silt loam or silty clay loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

BC and C horizons (where present):
Color—variegated in shades of brown, yellow, and gray
Texture—silt loam, silty clay loam, or silty clay
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—extremely acid to moderately acid

Guyton Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains
Parent material: Loamy alluvium
Geologic age of the parent material: Late Pleistocene and Early Holocene
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Low
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent
Taxonomic classification: Fine-silty, siliceous, active, thermic Typic Glossaqualfs

Associated Soils

The Guyton series is commonly associated with Amy, Bibb, Gurdon, Ouachita, Sacul, Sardis, Smithton, Stough, and Una soils.

Typical Pedon

Guyton silt loam in a wooded area of Guyton silt loam, 0 to 1 percent slopes, frequently flooded; Grant County, Arkansas; SE¼SE¼NE¼ sec. 4, T. 7 S., R. 13 W.; lat. 34 degrees 8 minutes 17.80 seconds N. and long. 92 degrees 24 minutes 52.00 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2, broken face) silt loam; weak medium subangular blocky structure; friable; many fine roots throughout; very strongly acid; clear smooth boundary.

Eg—4 to 11 inches; grayish brown (10YR 5/2, broken face) silt loam; weak medium subangular blocky structure; friable; many fine roots throughout; very strongly acid; clear wavy boundary.

BE—11 to 30 inches; gray (10YR 6/1, broken face) silt loam; weak medium subangular blocky structure; friable; few fine roots throughout; 18 percent continuous prominent light gray (10YR 7/1) silt coats on vertical faces of peds; 10 percent medium prominent dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear irregular boundary.

Btg1—30 to 52 inches; gray (10YR 6/1, broken face) silty clay loam; weak coarse subangular blocky structure; firm; 2 percent continuous distinct light gray (10YR 7/1) silt coats on faces of peds; 5 percent medium prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) masses of oxidized iron throughout; 2 percent medium prominent iron-manganese nodules; very strongly acid; clear wavy boundary.

Btg2—52 to 62 inches; gray (10YR 6/1, broken face) silty clay loam; weak coarse and medium subangular blocky structure; firm; 2 percent medium prominent strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) iron-manganese nodules; 1 percent fine prominent brownish yellow (10YR 6/8) and red (2.5YR 5/8) masses of oxidized iron throughout; extremely acid; clear smooth boundary.

Cg—62 to 80 inches; gray (10YR 6/1, broken face) sandy clay loam; massive; firm; 15 percent medium prominent yellowish brown (10YR 5/8) masses of oxidized iron throughout; 2 percent medium prominent iron-manganese nodules; extremely acid.

Range in Characteristics

Thickness of the solum: Greater than 50 inches

A horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—silt loam
- Reaction—extremely acid to moderately acid

Eg horizon and Eg part of the Btg/Eg horizon (where present):
- Color—hue of 10YR, value of 5 or 6 and chroma of 1 or 2
- Texture—silt loam, very fine sandy loam, or loam
- Color of redoximorphic features—shades of brown
- Reaction—extremely acid to moderately acid

Btg horizon and Btg part of the Btg/Eg horizon (where present):
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
- Texture—silt loam, silty clay loam, or clay loam
- Color of redoximorphic features—shades of brown and gray
- Reaction—extremely acid to moderately alkaline

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—silt loam, silty clay loam, or sandy clay loam
Color of redoximorphic features—shades of brown and gray
Reaction—extremely acid to moderately alkaline

Ouachita Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains and natural levees
Parent material: Loamy alluvium
Geologic age of the parent material: Holocene
Drainage class: Well drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent
Taxonomic classification: Fine-silty, siliceous, active, thermic Fluventic Dystrudepts

Associated Soils

The Ouachita series is commonly associated with Bibb, Guyton, Sardis, Una, and Urbo soils.

Typical Pedon

Ouachita silt loam in a wooded area of Ouachita silt loam, 0 to 2 percent slopes, frequently flooded; Grant County, Arkansas; SW$^1/_4$NE$^1/_4$SE$^1/_4$ sec. 4, T. 4 S., R. 15 W.; lat. 34 degrees 24 minutes 4.90 seconds N. and long. 92 degrees 37 minutes 0.20 seconds W.

A1—0 to 5 inches; dark grayish brown (10YR 4/2, broken face) silt loam; weak medium granular structure; friable; common fine and common medium roots throughout; strongly acid; clear smooth boundary.
A2—5 to 10 inches; dark yellowish brown (10YR 4/4, broken face) silt loam; weak medium granular structure; friable; few fine roots throughout; very strongly acid; clear smooth boundary.
Bw1—10 to 39 inches; yellowish brown (10YR 5/6, broken face) silt loam; weak medium subangular blocky structure; friable; few fine roots throughout; common fine low-continuity irregular pores; very strongly acid; gradual wavy boundary.
Bw2—39 to 57 inches; yellowish brown (10YR 5/8, broken face) silt loam; weak medium subangular blocky structure; friable; few fine roots throughout; common fine low-continuity irregular pores; 1 percent medium distinct pale brown (10YR 6/3) iron depletions throughout; very strongly acid; gradual wavy boundary.
BC—57 to 67 inches; yellowish brown (10YR 5/6, broken face) fine sandy loam; moderate medium subangular blocky structure; friable; common fine low-continuity irregular pores; very strongly acid; gradual wavy boundary.
C—67 to 80 inches; dark yellowish brown (10YR 4/6, broken face) stratified fine sandy loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 40 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam
Reaction—very strongly acid to moderately acid

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or loam
Color of redoximorphic features—shades of brown and gray
Reaction—strongly acid or very strongly acid

BC horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam, loam, fine sandy loam, or silty clay loam
Color of redoximorphic features—shades of brown and gray
Reaction—strongly acid or very strongly acid

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam, very fine sandy loam, fine sandy loam, or silty clay loam
Color of redoximorphic features—shades of brown and gray
Reaction—strongly acid or very strongly acid

Pikeville Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Side slopes
Parent material: Loamy and gravelly, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Well drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 8 percent
Taxonomic classification: Fine-loamy, siliceous, subactive, thermic Typic Paleudults

Associated Soils

The Pikeville series is commonly associated with Adaton, Saffell, Stough, and Warnock soils.

Typical Pedon

Pikeville fine sandy loam on a road cut in an area of Pikeville fine sandy loam, 1 to 8 percent slopes; Grant County, Arkansas; NW$^1/_4$NW$^1/_4$NW$^1/_4$ sec. 33, T. 6 S., R. 13 W.; lat. 34 degrees 9 minutes 26.40 seconds N. and long. 92 degrees 25 minutes 45.90 seconds W.

A—0 to 3 inches; brown (10YR 4/3, broken face) fine sandy loam; weak fine granular structure; friable; many fine and few medium roots throughout; 2 percent 0.2- to 3.0-inch quartz fragments; strongly acid; clear smooth boundary.

BE—3 to 8 inches; brown (7.5YR 4/4, broken face) sandy loam; weak fine subangular blocky structure; friable; few fine roots throughout; 5 percent fine faint irregular brown (10YR 4/3) masses of oxidized iron throughout with diffuse boundaries; 2 percent 0.2- to 3.0-inch quartz fragments; strongly acid; clear smooth boundary.

Bt1—8 to 19 inches; yellowish red (5YR 4/6, broken face) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 5 percent continuous faint clay films on faces of peds; 3 percent 0.2- to 3.0-inch quartz fragments; very strongly acid; gradual smooth boundary.

Bt2—19 to 37 inches; yellowish red (5YR 4/6, broken face) gravelly sandy clay loam; moderate medium subangular blocky structure; friable; few fine and few medium roots throughout; 5 percent continuous faint clay films on faces of peds; 18 percent 0.2- to 3.0-inch quartz fragments; very strongly acid; gradual wavy boundary.

Bt3—37 to 42 inches; strong brown (7.5YR 5/6, broken face) very gravelly sandy loam; moderate medium subangular blocky structure; friable; few fine and few medium roots throughout; 5 percent continuous faint clay films on faces of peds; 8 percent 3.0- to 9.8-inch quartz fragments and 50 percent 0.2- to 3.0-inch quartz fragments; very strongly acid; gradual wavy boundary.

Bt4—42 to 80 inches; strong brown (7.5YR 5/8, broken face) very gravelly sandy loam; weak subangular blocky structure; friable; 5 percent continuous faint clay films on faces of peds; 10 percent 3.0- to 9.8-inch quartz fragments and 49 percent 0.2- to 3.0-inch quartz fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 72 inches

A horizon:
- Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
- Texture—fine sandy loam
- Reaction—very strongly acid or strongly acid
- Coarse fragments—0 to 5 percent

E horizon (where present):
- Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3
- Texture—sandy loam, fine sandy loam, or loam
- Reaction—strongly acid or very strongly acid
- Coarse fragments—0 to 15 percent

BE horizon:
- Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 8
- Texture—sandy loam, fine sandy loam, or loam
- Reaction—strongly acid or very strongly acid
- Coarse fragments—0 to 5 percent

Bt1 and Bt2 horizons:
- Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 to 8
- Texture—sandy clay loam, clay loam, loam, or their gravelly or very gravelly analogs
- Reaction—strongly acid or very strongly acid
- Color of redoximorphic features—shades of brown or red
- Coarse fragments—0 to 25 percent

Bt3 and Bt4 horizons:
- Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 to 8
- Texture—sandy loam, sandy clay loam, clay loam, loam, or their gravelly or very gravelly analogs
- Coarse fragments—35 to 80 percent
- Reaction—strongly acid or very strongly acid
- Color of redoximorphic features—shades of brown or red

Rosalie Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Side slopes
Parent material: Loamy and sandy, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Well drained
Saturated hydraulic conductivity class: Moderately high

Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 8 percent
Taxonomic classification: Loamy, siliceous, active, thermic Arenic Paleudults

Associated Soils

The Rosalie series is commonly associated with Sacul, Sawyer, Stough, and Warnock soils.

Typical Pedon

Rosalie loamy fine sand in a wooded area of Rosalie loamy fine sand, 1 to 8 percent slopes; Grant County, Arkansas; NW¼NW¼NE¼ sec. 19, T. 3 S., R. 12 W.; lat. 34 degrees 27 minutes 1.30 seconds N. and long. 92 degrees 20 minutes 30.60 seconds W.

A—0 to 6 inches; brown (10YR 5/3, broken face) loamy fine sand; weak fine granular structure; loose; many fine roots; strongly acid; clear smooth boundary.

E1—6 to 14 inches; very pale brown (10YR 7/3, broken face) loamy fine sand; single grain; loose; many fine roots throughout; 2 percent fine prominent irregular reddish yellow (7.5YR 6/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

E2—14 to 23 inches; light yellowish brown (10YR 6/4, broken face) loamy fine sand; single grain; loose; few fine roots; 10 percent fine distinct iron-manganese nodules throughout with clear boundaries; 10 percent fine prominent irregular yellowish red (5YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bt/E—23 to 29 inches; 65 percent yellowish brown (10YR 5/6, broken face) and 35 percent light yellowish brown (10YR 6/4, broken face) sandy clay loam; weak fine subangular blocky structure and single grain; friable; few fine roots throughout; 10 percent discontinuous distinct sand coats between sand grains and 10 percent continuous prominent clay films throughout; 1 percent fine distinct brownish yellow (10YR 6/6) and light olive brown (2.5Y 5/6) iron-manganese nodules throughout with clear boundaries; 1 percent fine prominent irregular brownish yellow (10YR 6/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bt1—29 to 40 inches; yellowish brown (10YR 5/8, broken face) sandy clay loam; weak fine subangular blocky structure; friable; 10 percent continuous prominent clay films throughout; 5 percent medium strong brown (7.5YR 5/6) and red (2.5YR 5/6) masses of oxidized iron throughout; 5 percent medium prominent light brownish gray (10YR 6/2) iron depletions; noncemented plinthite nodules; very strongly acid; gradual wavy boundary.

Bt2—40 to 55 inches; light brownish gray (10YR 6/2, broken face) loam; weak fine subangular blocky structure; friable; 10 percent continuous prominent clay films throughout; 2 percent medium prominent irregular brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), and red (2.5YR 5/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual wavy boundary.

BC—55 to 80 inches; gray (10YR 5/1, broken face) clay loam; weak coarse angular blocky structure; friable; 2 percent medium prominent irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; 2 percent noncemented plinthite nodules; extremely acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—loamy fine sand
Reaction—strongly acid or moderately acid

E horizon and E part of the Bt/E horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 3 or 4
Texture—loamy fine sand or loamy sand
Reaction—extremely acid to strongly acid

Bt horizon and B part of Bt/E horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 2 to 8
Texture—loam, sandy clay loam, or clay loam
Color of redoximorphic features—shades of gray, yellow, red, or brown
Reaction—extremely acid to strongly acid

BC horizon:
Color—variegated in shades of red, brown, yellow, and gray
Texture—loam, sandy clay loam, or clay loam
Color of redoximorphic features—shades of yellow, brown, red, or gray
Reaction—extremely acid to strongly acid

Sacul Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Backslopes and side slopes
Parent material: Loamy and clayey, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Moderately well drained
Saturated hydraulic conductivity class: Moderately low
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 1 to 35 percent
Taxonomic classification: Fine, mixed, active, thermic Aquic Hapludults

Associated Soils

The Sacul series is commonly associated with Bibb, Guyton, Rosalie, Sawyer, Smithton, Stough, and Warnock soils.

Typical Pedon

Sacul fine sandy loam in a wooded area of Sacul fine sandy loam, 1 to 8 percent slopes; Grant County, Arkansas; NE$^1/_4$SW$^1/_4$SW$^1/_4$ sec. 9, T. 4 S., R. 13 W.; lat. 34 degrees 22 minutes 58.20 seconds N. and long. 92 degrees 25 minutes 20.70 seconds W.

A—0 to 4 inches; brown (10YR 4/3, broken face) fine sandy loam; weak medium granular structure; friable; many fine and many coarse roots throughout; 1 percent sedimentary rock fragments; strongly acid; abrupt smooth boundary.

E—4 to 7 inches; brown (10YR 5/3, broken face) fine sandy loam; weak medium granular structure; friable; many fine and many coarse roots throughout; very strongly acid; abrupt smooth boundary.

Bt1—7 to 22 inches; red (2.5YR 4/6, broken face) silty clay; strong medium subangular blocky structure; very firm, slightly plastic; few fine roots throughout; 25 percent continuous distinct clay films on faces of peds; 2 percent fine faint irregular red (10R 4/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bt2—22 to 31 inches; red (2.5YR 4/6, broken face) silty clay; strong medium subangular blocky structure; very firm, slightly plastic; few fine roots throughout; 25 percent continuous distinct clay films on faces of peds; 10 percent medium faint irregular red (10R 4/6) masses of oxidized iron throughout with diffuse boundaries; 10 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; light brownish gray (10YR 6/2) iron depletions throughout with sharp boundaries; very strongly acid; clear smooth boundary.

Btg1—31 to 42 inches; light brownish gray (10YR 6/2, broken face) silty clay loam; moderate medium angular blocky structure; very firm; 25 percent continuous distinct clay films on faces of peds; 10 percent medium prominent irregular red (2.5YR 4/6), red (10R 4/6), and strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

Btg2—42 to 52 inches; gray (10YR 6/1, broken face) silty clay loam; weak medium angular blocky structure; firm; 25 percent continuous distinct clay films on faces of peds; 10 percent medium prominent irregular red (10R 4/6) and strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

Btg3—52 to 62 inches; gray (10YR 6/1, broken face) silty clay loam; weak medium subangular blocky structure; firm; 20 percent continuous distinct clay films on faces of peds; 10 percent medium prominent irregular red (10R 4/6) and strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear smooth boundary.

BCg—62 to 75 inches; gray (10YR 6/1, broken face) clay loam; weak fine subangular blocky structure; firm; 10 percent medium prominent irregular strong brown (7.5YR 5/8) and red (2.5YR 4/6) masses of oxidized iron on vertical faces of peds with clear boundaries; 10 percent medium prominent irregular red (2.5YR 4/6) masses of oxidized iron throughout with clear boundaries; extremely acid; clear smooth boundary.

Cg—75 to 80 inches; light brownish gray (2.5Y 6/2, broken face) clay loam; massive; firm; 10 percent medium prominent irregular red (10R 4/6) and brownish yellow (10YR 6/8) masses of oxidized iron throughout with sharp boundaries; extremely acid.

Range in Characteristics

Thickness of the solum: Greater than 50 inches.

Content, by volume, of gravel-size fragments, 2 to 75 millimeters in diameter: 0 to 35 percent in the A and E horizons; 0 to 5 percent in the Bt horizon

A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—fine sandy loam or gravelly fine sandy loam
Reaction—very strongly acid to moderately acid

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—fine sandy loam or loam or their gravelly analogs
Reaction—moderately acid to very strongly acid

Bt horizon:

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Texture—silty clay, sandy clay, or clay
Color of redoximorphic features—shades of red, gray, and brown
Reaction—extremely acid to strongly acid

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2

Texture—silty clay loam, clay loam, or sandy clay loam
Color of redoximorphic features—shades of red, brown, yellow, and gray
Reaction—extremely acid to strongly acid

BCg and Cg horizons:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2
Texture—sandy clay loam, silty clay loam, clay loam, fine sandy loam, or silt loam
Color of redoximorphic features—shades of red, brown, yellow, or gray
Reaction—extremely acid to strongly acid

Saffell Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Backslopes and side slopes
Parent material: Loamy and gravelly, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Well drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 35 percent
Taxonomic classification: Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults

Associated Soils

The Saffell series is commonly associated with Pikeville; Sacul, gravelly; and Stough soils.

Typical Pedon

Saffell gravelly fine sandy loam on a road cut in an area of Saffell gravelly fine sandy loam, 1 to 8 percent slopes; Grant County, Arkansas; SW¼NW¼SW¼ sec. 14, T. 6 S., R. 13 W.; lat. 34 degrees 11 minutes 45.10 seconds N. and long. 92 degrees 23 minutes 34.70 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2, broken face) gravelly fine sandy loam; weak fine granular structure; friable; many fine and many medium roots throughout; 15 percent 0.2- to 3.0-inch quartz fragments; strongly acid; clear smooth boundary.

E—4 to 7 inches; yellowish brown (10YR 5/4, broken face) gravelly fine sandy loam; weak fine granular structure; friable; many fine and many medium roots throughout; 15 percent 0.2- to 3.0-inch quartz fragments; strongly acid; clear smooth boundary.

BE—7 to 14 inches; yellowish red (5YR 4/6, broken face) and yellowish brown (10YR 5/4, broken face) very gravelly loam; weak medium subangular blocky structure; friable; many fine and common medium roots throughout; 9 percent 0.1- to 0.2-inch quartz fragments and 26 percent 0.2- to 3.0-inch quartz fragments; strongly acid; clear smooth boundary.

Bt1—14 to 30 inches; yellowish red (5YR 5/6, broken face) very gravelly clay loam; weak medium subangular blocky structure; friable; few fine roots throughout; patchy faint clay films on rock fragments; 10 percent 0.1- to 0.2-inch quartz fragments and 30 percent 0.2- to 3.0-inch quartz fragments; strongly acid; gradual smooth boundary.

Bt2—30 to 45 inches; yellowish red (5YR 5/6, broken face) very gravelly sandy loam; weak medium subangular blocky structure; friable; few fine roots throughout; 25 percent patchy faint clay films on rock fragments; 5 percent 30- to 9.8-inch, 15

percent 0.1- to 0.2-inch, and 45 percent 0.2- to 3.0-inch quartz fragments; very strongly acid; gradual wavy boundary.

C1—45 to 65 inches; strong brown (7.5YR 5/6, broken face) extremely gravelly loamy sand; single grain; friable; 5 percent 3.0- to 9.8-inch, 25 percent 0.1- to 0.2-inch, and 45 percent 0.2- to 3.0-inch quartz fragments; very strongly acid; gradual wavy boundary.

C2—65 to 80 inches; red (2.5YR 4/6, broken face) extremely gravelly loamy sand; single grain; friable; 5 percent 3.0- to 9.8-inch, 25 percent 0.1- to 0.2-inch, and 45 percent 0.2- to 3.0-inch quartz fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 35 to 60 inches

A horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4
Texture—fine sandy loam, loam, or their gravelly analogs
Reaction—very strongly acid to moderately acid
Coarse fragments—15 to 35 percent

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—fine sandy loam, silt loam, loam, or their gravelly analogs
Reaction—very strongly acid to moderately acid
Coarse fragments—15 to 35 percent

BE horizon:

Color—hue of 10YR to 5YR, value of 4 to 6, and chroma of 3 to 6
Texture—fine sandy loam, sandy loam, loam, or their gravelly or very gravelly analogs
Reaction—very strongly acid to moderately acid
Coarse fragments—15 to 35 percent

Bt horizon:

Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—loam, loamy sand, sandy loam, silt loam, clay loam, or their gravelly, very gravelly, or extremely gravelly analogs
Reaction—very strongly acid to moderately acid
Coarse fragments—35 to 80 percent

C horizon:

Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—loam, loamy sand, sandy loam, silt loam, clay loam, or their gravelly, very gravelly, or extremely gravelly analogs
Color of redoximorphic features—shades of yellow, brown, or red
Reaction—very strongly acid to moderately acid
Coarse fragments—60 to 80 percent

Sardis Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains
Parent material: Loamy alluvium
Geologic age of the parent material: Holocene
Drainage class: Somewhat poorly drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep

Shrink-swell potential: Low
Slope: 0 to 1 percent
Taxonomic classification: Fine-silty, siliceous, active, thermic Fluvaquentic Dystrudepts

Associated Soils

The Sardis series is commonly associated with Bibb, Gurdon, Guyton, Ouachita, Una, and Urbo soils.

Typical Pedon

Sardis silt loam in a wooded area of Sardis silt loam, 0 to 1 percent slopes, frequently flooded; Grant County, Arkansas; NW1/4NW1/4NE1/4 sec. 22, T. 6 S., R. 14 W.; lat. 34 degrees 11 minutes 30.40 seconds N. and long. 92 degrees 30 minutes 41.00 seconds W.

A—0 to 5 inches; brown (10YR 5/3, broken face) silt loam; weak medium granular structure; friable; many fine roots throughout; 2 percent fine prominent irregular moderately cemented black (10YR 2/1) iron-manganese concretions throughout with clear boundaries; very strongly acid; abrupt smooth boundary.

Bw1—5 to 10 inches; yellowish brown (10YR 5/4, broken face) silt loam; weak medium subangular blocky structure; friable; few fine and few medium roots throughout; 10 percent medium distinct irregular light brownish gray (10YR 6/2) iron depletions throughout with clear boundaries; 2 percent fine prominent irregular strongly cemented black (10YR 2/1) iron- manganese concretions throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bw2—10 to 21 inches; yellowish brown (10YR 5/6, broken face) silty clay loam; weak medium subangular blocky structure; firm; few fine roots throughout; 10 percent medium prominent irregular light brownish gray (10YR 6/2) iron depletions throughout with clear boundaries; 2 percent fine prominent irregular strongly cemented black (10YR 2/1) iron-manganese concretions throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bw3—21 to 48 inches; yellowish brown (10YR 5/6, broken face) silty clay loam; moderate medium subangular blocky structure; firm; 10 percent medium prominent irregular gray (10YR 6/1) iron depletions throughout with clear boundaries; 2 percent fine prominent irregular strongly cemented iron-manganese concretions throughout with clear boundaries; very strongly acid; clear smooth boundary.

Cg—48 to 80 inches; gray (10YR 5/1, broken face) silty clay loam; massive; firm; 10 percent medium prominent irregular yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular strongly cemented black (10YR 2/1) iron-manganese concretions throughout with clear boundaries; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam
Reaction—very strongly acid to moderately acid

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 8
Texture—silt loam, silty clay loam, or clay loam
Color of redoximorphic features—shades of brown and gray
Reaction—very strongly acid to moderately acid

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2

Texture—silt loam, silty clay loam, clay loam, sandy loam, or fine sandy loam
Color of redoximorphic features—shades of brown or gray
Reaction—very strongly acid to moderately acid

Sawyer Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Interfluves
Parent material: Loamy and clayey, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Moderately well drained
Saturated hydraulic conductivity class: Moderately low
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 1 to 8 percent
Taxonomic classification: Fine-silty, siliceous, semiactive, thermic Aquic Paleudults

Associated Soils

The Sawyer series is commonly associated with Adaton, Bibb, Guyton, Rosalie, Sacul, Smithton, Stough, Warnock, and Wilcox soils.

Typical Pedon

Sawyer very fine sandy loam in a clear-cut area of Sawyer very fine sandy loam, 1 to 8 percent slopes; Grant County, Arkansas; SW¼NW¼SE¼ sec. 25, T. 6 S., R. 12 W.; lat. 34 degrees 9 minutes 59.90 seconds N. and long. 92 degrees 16 minutes 22.90 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2, broken face) very fine sandy loam; weak fine granular structure; friable; many fine and many medium roots throughout; strongly acid; clear smooth boundary.

E—4 to 9 inches; brown (10YR 5/3, broken face) fine sandy loam; weak fine subangular blocky structure; friable; common fine and common medium roots throughout; 10 percent medium prominent irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout with clear boundaries; strongly acid; gradual smooth boundary.

Bt1—9 to 24 inches; strong brown (7.5YR 5/6, broken face) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots throughout; 5 percent continuous faint clay films on faces of peds; 2 percent medium distinct irregular light yellowish brown (10YR 6/4) masses of oxidized iron throughout; very strongly acid; gradual smooth boundary.

Bt2—24 to 40 inches; yellowish brown (10YR 5/6, broken face) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots throughout; 5 percent continuous faint clay films on faces of peds; 10 percent medium prominent irregular red (2.5YR 5/6) masses of oxidized iron throughout with clear boundaries; 10 percent medium prominent irregular gray (10YR 6/1) iron depletions throughout with clear boundaries; very strongly acid; gradual smooth boundary.

Btg1—40 to 63 inches; gray (10YR 6/1, broken face) silty clay loam; strong medium subangular blocky structure; firm; 50 percent continuous distinct clay films on faces of peds; 25 percent medium prominent irregular strong brown (7.5YR 5/6) and red (2.5YR 5/6) masses of oxidized iron throughout with clear boundaries; 25 percent medium distinct irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual smooth boundary.

Btg2—63 to 80 inches; light brownish gray (10YR 6/2, broken face) clay; moderate medium angular blocky structure; very firm; 50 percent continuous distinct clay films on faces of peds; 5 percent medium prominent strong brown (7.5YR 5/6) and red (2.5YR 5/6) masses of oxidized iron throughout; extremely acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—very fine sandy loam
Reaction—very strongly acid to moderately acid

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—fine sandy loam, loam, or silt loam
Reaction—very strongly acid to moderately acid

Bt horizon:
Color—hue of 10YR, 7.5YR, or 2.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam, silty clay loam, or loam
Color of redoximorphic features—shades of brown, red, yellow, and gray
Reaction—very strongly acid or strongly acid

Btg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silty clay, silty clay loam, or clay
Color of redoximorphic features—shades of brown, yellow, red, and gray
Reaction—extremely acid to strongly acid

BCg horizon (where present):
Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—silty clay or clay
Color of redoximorphic features—shades of red, yellow, brown, and gray
Reaction—very strongly acid or strongly acid

Smithton Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Stream terraces
Parent material: Loamy alluvium
Geologic age of the parent material: Pleistocene and Early Holocene
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent
Taxonomic classification: Coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults

Associated Soils

The Smithton series is commonly associated with Amy, Bibb, Gurdon, Guyton, Sawyer, Stough, and Warnock soils.

Typical Pedon

Smithton fine sandy loam in a field plot beside a wooded area of Smithton fine sandy loam, 0 to 2 percent slopes; Grant County, Arkansas; NE$^1/_4$SW$^1/_4$SW$^1/_4$ sec. 29, T. 5

S., R. 15 W.; lat. 34 degrees 15 minutes 22.90 seconds N. and long. 92 degrees 39 minutes 1.70 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1, broken face) fine sandy loam; weak fine granular structure; friable; many fine and few medium roots throughout; strongly acid; abrupt smooth boundary.

Eg—4 to 14 inches; gray (10YR 6/1, broken face) loam; weak fine subangular blocky structure; friable; few fine roots throughout; 2 percent fine prominent irregular weakly cemented yellowish brown (10YR 5/6) and black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; clear wavy boundary.

Btg1—14 to 25 inches; gray (10YR 6/1, broken face) loam; weak medium subangular blocky structure; friable; few fine roots throughout; 5 percent patchy distinct clay bridges on faces of peds; 2 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular weakly cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; clear wavy boundary.

Btg2—25 to 43 inches; gray (10YR 6/1, broken face) loam; weak medium subangular blocky structure; friable; few fine roots throughout; 5 percent continuous faint clay bridges on faces of peds; 25 percent medium prominent irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular weakly cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; clear wavy boundary.

Btg3—43 to 61 inches; gray (2.5Y 6/1, broken face) clay loam; moderate medium subangular blocky structure; firm; few fine roots throughout; 6 percent patchy prominent dark gray (10YR 4/1) clay films on faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear wavy boundary.

Btg4—61 to 80 inches; gray (2.5Y 6/1, broken face) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots throughout; 5 percent patchy prominent dark gray (10YR 4/1) clay films on faces of peds; 2 percent medium prominent irregular yellowish brown (10YR 5/8) and brownish yellow (10YR 6/6) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular brownish yellow (10YR 6/6) masses of oxidized iron throughout with clear boundaries; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 1 or 2
Texture—fine sandy loam
Reaction—strongly acid or very strongly acid

Eg horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 1 or 2
Texture—fine sandy loam or loam
Color of redoximorphic features—shades of brown
Reaction—strongly acid or very strongly acid

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—loam, silty clay loam, sandy clay loam, clay loam, or silt loam
Color of redoximorphic features—shades of brown, yellow, and gray
Reaction—strongly acid or very strongly acid

Stough Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Terraces and broad uplands
Parent material: Loamy, marine and fluvial deposits
Geologic age of the parent material: Late Tertiary and Early Pleistocene
Drainage class: Somewhat poorly drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 3 percent
Taxonomic classification: Coarse-loamy, siliceous, semiactive, thermic, Fragiaquic Paleudults

Associated Soils

The Stough series is commonly associated with Amy, Gurdon, Guyton, Pikeville, Sacul, Sawyer, Smithton, Warnock, and Wilcox soils.

Typical Pedon

Stough fine sandy loam in a wooded area of Stough fine sandy loam, 1 to 3 percent slopes; Grant County, Arkansas; NE¼SW¼SW¼ sec. 23, T. 6 S., R. 12 W.; lat. 34 degrees 10 minutes 43.90 seconds N. and long. 92 degrees 17 minutes 50.00 seconds W.

A—0 to 3 inches; brown (10YR 5/3, broken face) fine sandy loam; 5 percent clay, 60 percent sand, and 35 percent silt; moderate medium granular structure; friable; many fine roots throughout; strongly acid; abrupt smooth boundary.

E—3 to 7 inches; pale brown (10YR 6/3, broken face) fine sandy loam; 6 percent clay, 55 percent sand, and 30 percent silt; weak medium granular structure; friable; common fine and common medium roots throughout; very strongly acid; clear wavy boundary.

Bt1—7 to 17 inches; yellowish brown (10YR 5/4, broken face) loam; 14 percent clay, 45 percent sand, and 40 percent silt; weak medium subangular blocky structure; friable; common fine roots throughout; 10 percent patchy faint clay films on faces of peds; 2 percent medium distinct irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; clear wavy boundary.

Bt2—17 to 30 inches; yellowish brown (10YR 5/6, broken face) loam; 18 percent clay, 45 percent sand, and 35 percent silt; moderate medium subangular blocky structure; friable; common fine and common medium roots throughout; 10 percent continuous faint clay films on faces of peds; 2 percent medium distinct irregular gray (10YR 6/1) iron depletions throughout with diffuse boundaries; 2 percent medium prominent irregular weakly cemented red (2.5YR 4/6) iron-manganese concretions throughout with clear boundaries; 1 percent fine distinct irregular yellowish brown (10YR 5/8) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual smooth boundary.

Btx1—30 to 46 inches; yellowish brown (10YR 5/6, broken face) loam; 23 percent clay, 35 percent sand, and 40 percent silt; moderate coarse prismatic structure; firm; common fine roots between peds and common medium roots throughout; 30 percent brittle; 25 percent continuous distinct clay films on faces of peds; 30 percent medium distinct irregular gray (10YR 6/1) iron depletions throughout with clear boundaries; 3 percent medium distinct irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; 35 percent slightly brittle and compact; very strongly acid; gradual smooth boundary.

Btx2—46 to 60 inches; yellowish brown (10YR 5/8, broken face) loam; 26 percent clay, 40 percent sand, and 30 percent silt; weak medium subangular blocky and

moderate medium prismatic structure; firm; common medium roots between peds; 40 percent brittle; 25 percent continuous distinct clay films on faces of peds; 30 percent medium distinct irregular gray (10YR 6/1) iron depletions throughout with clear boundaries; 5 percent medium distinct irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; 40 percent slightly brittle and compact; very strongly acid; gradual wavy boundary.

Btx3—60 to 80 inches; 80 percent red (2.5YR 4/6, broken face) and 20 percent yellowish brown (10YR 5/8, broken face) sandy clay loam; 31 percent clay, 62 percent sand, and 7 percent silt; weak medium angular blocky structure; firm; common medium roots between peds; 25 percent continuous faint clay films on faces of peds; 20 percent medium prominent irregular strong brown (7.5YR 5/6) iron depletions throughout with clear boundaries; 20 percent slightly brittle and compact; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:
- Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
- Texture—fine sandy loam
- Reaction—moderately acid or strongly acid

E horizon:
- Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
- Texture—fine sandy loam or loam
- Reaction—strongly acid or very strongly acid

Bt horizon:
- Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8
- Texture—loam or sandy loam
- Color of redoximorphic concentrations and depletions—shades of brown or gray
- Reaction—strongly acid or very strongly acid

Btx horizon:
- Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8; or variegated in shades of gray, red, and brown
- Texture—loam or sandy clay loam
- Color of redoximorphic concentrations and depletions—shades of brown or gray
- Reaction—strongly acid or very strongly acid

Una Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains
Parent material: Clayey alluvium
Geologic age of the parent material: Holocene
Drainage class: Poorly drained
Saturated hydraulic conductivity class: Low
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 1 percent
Taxonomic classification: Fine, mixed, active, acid, thermic Typic Epiaquepts

Associated Soils

The Una series is commonly associated with Gurdon, Guyton, Ouachita, Sardis, and Urbo soils.

Typical Pedon

Una silty clay loam in a wooded area of Una silty clay loam, 0 to 1 percent slopes, frequently flooded; Grant County, Arkansas; NW1/4NE1/4SW1/4 sec. 18, T. 6 S., R. 14 W.; lat. 34 degrees 11 minutes 49.70 seconds N. and long. 92 degrees 33 minutes 59.30 seconds W.

A—0 to 2 inches; very dark grayish brown (10YR 3/2, broken face) silty clay loam; moderate medium granular structure; firm, slightly sticky and slightly plastic; many fine roots throughout; strongly acid; abrupt smooth boundary.

Bgc1—2 to 11 inches; gray (10YR 5/1, broken face) silty clay; moderate fine subangular blocky structure; very firm, slightly sticky and slightly plastic; many fine and many medium roots throughout; 15 percent medium prominent irregular strong brown (7.5YR 5/6) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular moderately cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bgc2—11 to 32 inches; gray (10YR 6/1, broken face) silty clay; 36 percent clay, 17 percent sand, and 47 percent silt; moderate fine subangular blocky structure; very firm, slightly sticky and slightly plastic; few medium roots throughout; 10 percent medium prominent irregular strong brown (7.5YR 4/6) masses of oxidized iron throughout with clear boundaries; 10 percent medium prominent irregular yellowish brown (10YR 5/6) and reddish yellow (7.5YR 6/8) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent spherical moderately cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bgc3—32 to 54 inches; light brownish gray (2.5Y 6/2, broken face) clay; 40 percent clay, 16 percent sand, and 44 percent silt; moderate fine subangular blocky structure; very firm, slightly sticky and slightly plastic; 10 percent medium prominent irregular strong brown (7.5YR 4/6) and olive yellow (2.5Y 6/8) masses of oxidized iron throughout with clear boundaries; 2 percent fine prominent irregular moderately cemented manganese masses throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bgc4—54 to 80 inches; gray (2.5Y 6/1, broken face) clay; moderate medium angular blocky structure; very firm, slightly sticky and slightly plastic; 10 percent medium prominent irregular olive yellow (2.5Y 6/6) and yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; 2 percent fine faint threadlike weakly cemented gypsum crystals with clear boundaries throughout; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:

Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2
Texture—silty clay loam
Reaction—strongly acid or very strongly acid

Bgc horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2
Texture—silty clay, clay, or silty clay loam
Color of redoximorphic features—shades of brown or yellow
Reaction—strongly acid or very strongly acid

Cg horizon (where present):

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2
Texture—silty clay loam, silty clay, or clay

Color of redoximorphic features—shades of brown or yellow
Reaction—strongly acid or very strongly acid

Urbo Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Flood plains
Parent material: Clayey alluvium
Geologic age of the parent material: Holocene
Drainage class: Somewhat poorly drained
Saturated hydraulic conductivity class: Low
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 2 percent
Taxonomic classification: Fine, mixed, active, acid, thermic Vertic Epiaquepts

Associated Soils

The Urbo series is commonly associated with Guyton, Ouachita, Sardis, and Una soils.

Typical Pedon

Urbo silty clay loam in a wooded area of Urbo silty clay loam, 0 to 2 percent slopes, frequently flooded; Grant County, Arkansas; $SW^1/_4SW^1/_4NW^1/_4$ sec. 6, T. 6 S., R. 14 W.; lat. 34 degrees 13 minutes 48.70 seconds N. and long. 92 degrees 34 minutes 4.10 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2, broken face) silty clay loam; weak fine granular structure; firm; many fine roots throughout; very strongly acid; abrupt smooth boundary.

A—6 to 17 inches; brown (10YR 5/3, broken face) silty clay loam; weak fine subangular blocky structure; firm; few fine roots throughout; 2 percent fine prominent spherical moderately cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bg1—17 to 32 inches; light olive brown (2.5Y 5/4, broken face) silty clay loam; moderate fine subangular blocky structure; firm, slightly sticky and slightly plastic; few fine roots throughout; 2 percent fine distinct irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; 2 percent medium distinct light brownish gray (2.5Y 6/2) iron depletions throughout with clear boundaries; 2 percent fine prominent spherical moderately cemented black (10YR 2/1) manganese masses throughout with clear boundaries; very strongly acid; clear smooth boundary.

Bg2—32 to 47 inches; gray (10YR 6/1, broken face) silty clay; moderate fine and medium subangular blocky structure; very firm, very sticky and very plastic; few fine roots throughout; 10 percent distinct silt coats; 25 percent fine prominent spherical moderately cemented strong brown (7.5YR 5/8), yellowish brown (10YR 5/6), and black (10YR 2/1) manganese masses throughout with clear boundaries; 10 percent medium prominent irregular strong brown (7.5YR 5/8) masses of oxidized iron throughout with clear boundaries; 10 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bg3—47 to 66 inches; gray (10YR 6/1, broken face) silty clay; moderate fine and medium subangular blocky structure; very firm, very sticky and very plastic; 10 percent distinct silt coats; 25 percent fine prominent spherical moderately cemented black (10YR 2/1), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) manganese masses throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Bg4—66 to 80 inches; gray (10YR 6/1, broken face) silty clay; moderate medium and fine subangular blocky structure; very firm, slightly sticky and very plastic; 10 percent medium prominent irregular reddish yellow (7.5YR 6/8) and brownish yellow (10YR 6/6) masses of oxidized iron throughout with clear boundaries; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam or silty clay loam
Color of redoximorphic features—shades of brown
Reaction—strongly acid or very strongly acid

A horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam, silty clay loam, or silty clay
Color of redoximorphic features—shades of gray or brown
Reaction—strongly acid or very strongly acid

Bg horizon:
Color—hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 1 or 2
Texture—silty clay loam, silty clay, or clay
Color of redoximorphic features—shades of yellow, brown, and/or gray
Reaction—strongly acid or very strongly acid

Warnock Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Side slopes
Parent material: Loamy, marine deposits
Geologic age of the parent material: Tertiary
Drainage class: Moderately well drained
Saturated hydraulic conductivity class: Moderately high
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 7 percent
Taxonomic classification: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Associated Soils

The Warnock series is commonly associated with Adaton; Bibb; Pikeville; Rosalie; Sacul; Sacul, gravelly; Sawyer; Smithton; and Stough soils.

Typical Pedon

Warnock fine sandy loam in a wooded area of Warnock fine sandy loam, 1 to 7 percent slopes; Grant County, Arkansas; NW$^1/_4$NE$^1/_4$SE$^1/_4$ sec. 20, T. 5 S., R. 13 W.; lat. 34 degrees 16 minutes 13.20 seconds N. and long. 92 degrees 25 minutes 53.50 seconds W.

A—0 to 4 inches; brown (10YR 4/3, broken face) fine sandy loam; weak fine granular structure; friable; common fine and common medium roots throughout; strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4, broken face) fine sandy loam; weak fine granular structure; friable; common fine roots throughout; very strongly acid; clear smooth boundary.

Bt1—10 to 28 inches; strong brown (7.5YR 5/6, broken face) clay loam; weak medium subangular blocky structure; firm; few fine roots throughout; 25 percent continuous faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—28 to 47 inches; yellowish brown (10YR 5/6, broken face) clay loam; moderate medium subangular blocky structure; firm; 25 percent continuous faint clay films on faces of peds; 10 percent medium prominent irregular red (2.5YR 4/6) masses of oxidized iron throughout with clear boundaries; very strongly acid; gradual wavy boundary.

Btx—47 to 50 inches; yellowish brown (10YR 5/8, broken face) clay loam; moderate medium subangular blocky structure; firm; 25 percent continuous faint clay films on faces of peds; 10 percent medium prominent irregular light brownish gray (10YR 6/2) iron depletions throughout with clear boundaries; 2 percent fine distinct irregular dark yellowish brown (10YR 4/6) masses of oxidized iron throughout with clear boundaries; 35 percent slightly brittle; very strongly acid; gradual wavy boundary.

Btxg—50 to 80 inches; light brownish gray (10YR 6/2, broken face) clay loam; moderate medium subangular blocky structure; firm; 50 percent continuous distinct clay films on faces of peds; 10 percent medium prominent irregular red (2.5YR 4/6), strong brown (7.5YR 4/6), and yellowish brown (10YR 5/6) masses of oxidized iron throughout with clear boundaries; 5 percent plinthite nodules; 25 percent slightly brittle; very strongly acid.

Range in Characteristics

Thickness of the solum: Greater than 60 inches

A horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—fine sandy loam
Reaction—extremely acid to strongly acid

E horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—fine sandy loam or sandy loam
Reaction—extremely acid to strongly acid

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8
Texture—sandy clay loam, clay loam, or loam
Color of redoximorphic features—shades of gray, red, brown, or yellow
Reaction—extremely acid to strongly acid

Btx horizon:

Color—hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 4 to 8; or variegated in shades of red, brown, and gray
Texture—loam, sandy clay loam, silty clay loam, or clay loam
Color of redoximorphic features—shades of red, yellow, gray, or brown
Reaction—extremely acid to strongly acid

Wilcox Series

Major land resource area: 133B—Western Coastal Plain
Geomorphic setting: Hills
Position on hillslopes: Backslopes and side slopes
Parent material: Clayey, marine sediments over shale
Geologic age of the parent material: Tertiary
Drainage class: Somewhat poorly drained

Saturated hydraulic conductivity class: Low
Soil depth class: Deep (to bedrock or a paralithic layer)
Shrink-swell potential: High
Slope: 1 to 15 percent
Taxonomic classification: Very-fine, smectitic, thermic Chromic Dystruderts

Associated Soils

The Wilcox series is commonly associated with Adaton, Sawyer, and Stough soils.

Typical Pedon

Wilcox silty clay loam in a clear-cut area of Wilcox silty clay loam, 1 to 8 percent slopes; Grant County, Arkansas; NE¼SE¼SE¼ sec. 4, T. 5 S., R. 12 W.; lat. 34 degrees 18 minutes 31.00 seconds N. and long. 92 degrees 18 minutes 7.20 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1, broken face) silty clay loam; weak fine subangular blocky structure; firm; many fine roots throughout; very strongly acid; abrupt smooth boundary.

Bt—4 to 9 inches; brown (7.5YR 4/4, broken face) silty clay loam; weak fine subangular blocky structure; firm; many fine and common medium roots; very strongly acid; abrupt smooth boundary.

Btss—9 to 17 inches; red (2.5YR 4/6, broken face) clay; moderate medium angular blocky structure; very firm; common fine roots throughout; 5 percent continuous distinct slickensides (pedogenic) on faces of peds and 5 percent patchy faint clay films on faces of peds; 10 percent medium prominent irregular yellowish red (5YR 5/8) masses of oxidized iron; 10 percent medium grayish brown (10YR 5/2) iron depletions; extremely acid; clear wavy boundary.

Bss1—17 to 45 inches; light brownish gray (2.5Y 6/2, broken face) clay; moderate medium angular blocky structure; very firm; few fine roots throughout; 5 percent distinct slickensides (pedogenic) on faces of peds; 10 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron; extremely acid; clear wavy boundary.

Bss2—45 to 58 inches; light brownish gray (2.5Y 6/2, broken face) clay; strong medium angular blocky structure; very firm; common fine roots throughout; 5 percent continuous distinct slickensides (pedogenic) on faces of peds; 10 percent medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; 10 percent medium prominent gray (10YR 6/1) iron depletions; extremely acid; gradual irregular boundary.

Cr—58 to 80 inches; grayish brown (2.5Y 5/2, broken face) parachannery clay; massive; very firm; 10 percent medium prominent irregular yellowish brown (10YR 5/6) masses of oxidized iron; 10 percent medium gray (10YR 6/1) iron depletions; 35 percent clayey shale fragments; extremely acid.

Range in Characteristics

Thickness of the solum: Greater than 40 inches

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 3
Texture—silty clay loam
Reaction—strongly acid or very strongly acid

Bt and Btss horizons:
Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silty clay loam, silty clay, or clay
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of gray, brown, yellow, and red

Bss horizon:

Color—hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 1 or 2
Texture—silty clay or clay
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of yellow and red

Cg horizon (where present):

Color—hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 1 or 2
Texture—clay
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of yellow and brown

Cr horizon:

Color—gray or brown
Texture—soft weathered platy clay shale
Reaction—extremely acid to strongly acid
Color of redoximorphic features—shades of yellow and brown

Formation of the Soils

This section relates the soils in the survey area to the major factors of soil formation.

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The characteristics of the soil are determined by the type of parent material; the animal life on and in the soil; the climate under which the soil forming factors were active; the topography, or lay of the land; and the length of time these forces have been active.

The parent material affects the kind of soil profile that is formed and, in extreme cases, determines it almost entirely. Plant and animal life are the active factors of soil formation. The climate determines the amount of water available for leaching and the amount of heat for physical and chemical changes. Together, climate and plant and animal life act on the parent material and slowly change it to a natural body that has genetically related horizons. Topography commonly modifies these factors. Finally, time is required for changes in the parent material to result in the formation of a soil. Generally, a long time is required for the development of distinct soil horizons.

The factors of soil formation are so closely interrelated that few generalizations can be made about the effects of any one factor unless conditions are specified for the other four. Soil formation is complex, and many processes of soil development are interrelated.

Parent Material

Parent material is the unconsolidated mass in which soil forms. The formation or deposition of this material is the first step in the development of a soil profile. The characteristics of the material determine the chemical and mineralogical composition of the soil. The soils of Grant County formed in two broad classes of parent material: alluvium, deposited by local and ancient streams, and marine sediment, deposited when the Gulf of Mexico covered the area that is now southern and eastern Arkansas.

The parent material in the bottom lands and on stream terraces is mainly alluvial deposits, which occur throughout the county. Amy, Bibb, Gurdon, Guyton, Ouachita, Sardis, Smithton, Stough, Una, and Urbo soils formed in alluvial deposits. The parent material on the uplands is mainly loamy and clayey marine sediments. Adaton, Pikeville, Rosalie, Sacul, Saffell, Sawyer, Warnock, and Wilcox soils formed in these sediments.

Living Organisms

Plants and animals on and in the soil are active in the soil-forming process. Plants furnish organic matter to the soil and bring nutrients from underlying layers to the surface layer. As plants die and decay, they contribute organic matter to the soil. Bacteria and fungi decompose the plant remains and help to incorporate the organic matter into the soil.

The native vegetation greatly influenced soil formation in Grant County. The basic kinds of native vegetation were hardwoods and pines. Additions of organic matter to

soils that formed under forest vegetation are mostly the result of leaves and twigs that decompose on the surface. These soils have a thin, dark surface.

Insects, worms, humans, burrowing animals, and other animals participate in soil formation. Bacteria and fungi rot organic matter, fix nitrogen, and improve tilth. Burrowing animals and insects loosen and mix various soil horizons. In a relatively short time, human activities have greatly affected the processes of soil formation. People clear forests, cultivate soil, and introduce new kinds of plants. People add fertilizer, lime, and chemicals to the soil to control insects, diseases, and weeds. Levees and dams for flood control, practices that improve drainage, and changes to the grading of the soil surface also influence the development of soils. The results of these changes may not be evident for many centuries. Regardless, people have drastically altered the pool of living organisms, thereby affecting soil formation in Grant County.

Climate

The climate of Grant County is characterized by short, cool winters and long, hot summers with adequate rainfall. The present climate probably is similar to the climate under which the soils formed. The average daily temperature is about 80 degrees in the summer and 44 degrees in the winter. Average annual rainfall is about 54 inches and is generally well distributed throughout the year.

Climate is an important factor of soil formation. Geologic erosion; plant and animal life; and, in more recent times, accelerated erosion have all varied with climate. High temperatures and adequate rainfall encourage rapid chemical and physical changes. This type of climate is conducive to the breakdown of minerals and the relocation of clay within the soil. The clay is moved downward into the soil profile, and this downward movement results in the formation of the subsoil. Nearly all of the soils on uplands in the county show evidence of this type of clay movement.

Topography

Topography, or relief, affects soil formation through its influence on drainage, runoff, rate of water infiltration, and geologic erosion. Topography is characterized by the length, shape, aspect, and degree of slope. It is important in determining the pattern and distribution of soil. The amount of water entering the soil depends on steepness of slope, permeability, and intensity of rainfall. Because runoff is rapid in steep areas, very little water passes though the soil and soil formation is slow. Geologic erosion almost keeps pace with the soil-forming processes. In gently sloping areas, runoff is slow, erosion is minimal, and most of the water passes though the soil. Illuviation, or the translocation of clay, and other soil-forming processes are intensified in these areas. Soils in these areas generally show maximum profile development.

Soils on steep, south-facing slopes receive more direct sunlight and are drier than similar soils on north-facing slopes. Drier conditions influence soil formation by affecting the kind of vegetation present, the susceptibility of soils to erosion, and the cycles of freezing and thawing.

Time

The degree of profile development is dependent on the length of time that the plant material has been in place and subject to the soil-forming processes. Older soils show the effects of leaching and clay movement and have developed distinct horizons. Young soils tend to show little profile development.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. Values for available water capacity listed in the section “Detailed Soil Map Units” apply to the whole profile. Available water capacity is commonly expressed as inches of water per inch of soil. Categories are:

Very low	0 to 0.05
Low	0.05 to 0.10
Moderate	0.10 to 0.17
High	0.17 to 0.22
Very high	more than 0.22

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Board foot. A unit of measure of the wood in lumber, logs, or trees. One board foot is the amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

Bottomland. The normal flood plain of a stream, subject to flooding.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeters in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey soil. Silty clay, sandy clay, or clay.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

COLE (coefficient of linear extensibility). See Linear extensibility.

Commercial forest. Forestland capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-

improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, this helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Depth to water (in tables). Permanent water is too deep during the dry season.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Densic contact. A contact between soil and densic materials. It has no cracks, or the spacing of cracks that roots can enter is 10 centimeters or more. Densic materials are relatively unaltered, noncemented materials that only allow root penetration in the cracks.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a

consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Droughty (in tables). The soil holds too little water for plants during dry periods.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic).—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fine textured soil. Sandy clay, silty clay, or clay.
First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.
Flooding (in tables). The soil is flooded by moving water from stream overflow or runoff.
Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.
Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
Forb. Any herbaceous plant not a grass or a sedge.
Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.
Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.
Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
Ground water. Water filling all the unblocked pores of the material below the water table.
Growing season wetness (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.
Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
Hard to pack (in tables). The soil is difficult to compact using the equipment regularly used for earthwork construction.
Hard to reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next

crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. A soil can be placed in a hydrologic group with low runoff potential, but exhibit medium surface runoff because of steep slope. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Infrequent flooding (in tables). Flooding occurs at an interval that limits riparian plant species.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low	less than 0.2
Low	0.2 to 0.4
Moderately low	0.4 to 0.75
Moderate	0.75 to 1.25
Moderately high	1.25 to 1.75
High	1.75 to 2.5
Very high	more than 2.5

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Ksat. See Saturated hydraulic conductivity.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Low	less than 3 percent
Moderate	3 to 6 percent
High	6 to 9 percent
Very high	more than 9 percent

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic contact. A boundary between soil and a coherent underlying material. Cracks that can be penetrated by roots are few. Commonly the material is indurated, and the material below a lithic contact must be in a strongly cemented or more cemented rupture-resistance class.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of Redoximorphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that have high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and trafficpan.

Paralithic contact. A contact between soil and paralithic materials. Paralithic materials are primarily unaltered and extremely weakly cemented to moderately cemented. These materials can also be partially weathered bedrock or weakly consolidated bedrock, such as sandstone, siltstone, or shale.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. Historically, the rate at which a saturated soil transmitted water was expressed as “permeability.” Currently, saturated hydraulic conductivity (Ksat) is accepted as the measure of this quality. Terms describing permeability, measured in inches per hour, are as follows:

Very rapid	20 or more
Rapid	6.0 to less than 20
Moderately rapid	2.0 to less than 6.0
Moderate	0.60 to less than 2.0
Moderately slow	0.20 to less than 0.60
Slow	0.06 to less than 0.20
Very slow	0.0015 to less than 0.06
Impermeable	less than 0.0015

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-

water runoff or seepage flow from ground water. Runoff classes are expressed as a function of slope and saturated hydraulic conductivity: *N* is negligible, *VL* is very low, *L* is low, *M* is medium, *H* is high, and *VH* is very high.

Slope class	Ksat class					
	Very high	High	Moderately high	Moderately low	Low	Very low
Concave	N	N	N	N	N	N
Less than 1	N	N	N	L	M	H
1 to 5	N	VL	L	M	H	VH
5 to 10	VL	L	M	H	VH	VH
10 to 20	VL	L	M	H	VH	VH
More than 20	L	M	H	VH	VH	VH

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline ..... 0 to 4
Slightly saline ..... 4 to 8
Moderately saline ..... 8 to 16
Strongly saline ..... more than 16

Sandy soil. Sand or loamy sand.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Saturated hydraulic conductivity (Ksat). Saturated hydraulic conductivity is the rate at which a saturated soil transmits water. Entries under saturated hydraulic conductivity (Ksat) apply to the entire soil profile. Terms describing saturated hydraulic conductivity, measured in micrometers per second, are as follows:

Very high ..... more than 100
High ..... 10 to 100
Moderately High ..... 1 to 10
Moderately low ..... 0.1 to 1
Low ..... 0.01 to 0.1
Very low ..... less than 0.01

Saw logs. Logs of suitable size and quality for the production of lumber.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots. Values for shrink-swell potential listed

in the section “Detailed Soil Map Units” apply to the whole profile. The shrink-swell potential is measured as a function of linear extensibility.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and co-dominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and co-dominant trees at an index age of 50 years.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and co-dominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and co-dominant trees at an index age of 100 years.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and co-dominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	1 to 3 percent
Gently sloping	3 to 8 percent
Moderately steep	8 to 15 percent
Steep	15 to 35 percent
Very steep	35 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13 to 30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste It

is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stickiness (in tables). The soil is slippery and sticky when wet and slow to dry.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that was produced during a former stage of erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Subsurface layer. Any subsurface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Too acid (in tables). The soil is so acid that growth of plants is restricted.

Too clayey (in tables). The soil is slippery and sticky when wet and slow to dry.

Too sandy (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to use as gravel.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat surface that was cut or built by stream or wave action.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wetness (in tables). The soil is wet during the period of desired use.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

[Recorded in the period 1971-2000 at Leola, Arkansas]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--		Average number of days with 0.10 inch	Average snowfall
	Average daily maximum	Average daily minimum	Average	Max. temp. higher than--	Min. temp. lower than--	Average number of growing degree days*	Avg.	Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	51.9	30.5	41.2	77	7	142	4.38	1.87	6.94	6	1.7
February---	58.7	34.4	46.6	80	10	234	3.78	2.11	5.28	5	1.2
March------	66.9	41.7	54.3	86	19	445	4.82	3.02	6.53	6	0.1
April------	75.0	49.3	62.1	89	28	664	4.73	2.19	6.80	6	0.0
May--------	81.2	58.0	69.6	92	39	915	5.56	2.78	8.12	7	0.0
June-------	88.2	65.5	76.9	98	50	1,103	4.22	1.86	6.34	6	0.0
July-------	92.0	69.5	80.8	102	57	1,236	4.15	1.40	6.78	5	0.0
August-----	91.7	67.9	79.8	102	55	1,201	3.16	1.25	4.75	4	0.0
September--	85.0	61.3	73.1	99	40	992	3.63	1.60	5.18	5	0.0
October----	75.5	48.6	62.0	91	28	682	4.41	1.97	6.56	4	0.0
November---	62.8	40.1	51.5	82	19	355	5.30	2.77	7.62	6	0.2
December---	55.0	33.6	44.3	76	10	198	5.42	2.89	7.80	6	0.4
Yearly:											
Average--	73.7	50.0	61.8	---	---	---	---	---	---	---	---
Extreme--	108	-2	---	103	5	---	---	---	---	---	---
Total----	---	---	---	---	---	8,167	53.56	40.95	58.83	66	3.6

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

[Recorded in the period 1971-2000 at Leola, Arkansas]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Mar. 26	Apr. 5	Apr. 16
2 years in 10 later than--	Mar. 18	Mar. 31	Apr. 11
5 years in 10 later than--	Mar. 3	Mar. 21	Apr. 3
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 1	Oct. 26	Oct. 4
2 years in 10 earlier than--	Nov. 7	Oct. 30	Oct. 10
5 years in 10 earlier than--	Nov. 19	Nov. 8	Oct. 22

Table 3.--Growing Season

[Recorded in the period 1961-2000 at Leola, Arkansas]

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
9 years in 10	235	215	187
8 years in 10	244	221	194
5 years in 10	262	231	206
2 years in 10	279	242	219
1 year in 10	288	248	225
	Beginning and ending dates (growing season length)		
50 percent*	Mar. 1 to Nov. 17 (262 days)	Mar. 20 to Nov. 6 (231 days)	Apr. 4 to Oct. 27 (206 days)
75 percent*	Feb. 24 to Nov. 23 (272 days)	Mar. 17 to Nov. 10 (238 days)	Mar. 31 to Oct. 31 (214 days)

*** Percent chance of the growing season occurring between the beginning and ending dates.**

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1B	Adaton silt loam, 0 to 2 percent slopes	8,042	2.0
2B	Amy silt loam, 0 to 2 percent slopes	15,638	3.9
3A	Bibb fine sandy loam, 0 to 1 percent slopes, frequently flooded	14,690	3.6
4	Dam	6	*
4B	Gurdon silt loam, 1 to 3 percent slopes	5,085	1.3
5A	Guyton silt loam, 0 to 1 percent slopes, frequently flooded	43,276	10.7
6B	Ouachita silt loam, 0 to 2 percent slopes, frequently flooded	21,432	5.3
7C	Pikeville fine sandy loam, 1 to 8 percent slopes	15,593	3.8
8	Pits, gravel	1,075	0.3
9C	Rosalie loamy fine sand, 1 to 8 percent slopes	8,606	2.1
10C	Sacul fine sandy loam, 1 to 8 percent slopes	28,140	6.9
10D	Sacul fine sandy loam, 8 to 15 percent slopes	11,437	2.8
10E	Sacul fine sandy loam, 15 to 35 percent slopes	8,997	2.2
11C	Sacul gravelly fine sandy loam, 1 to 8 percent slopes	10,028	2.5
11D	Sacul gravelly fine sandy loam, 8 to 15 percent slopes	3,910	1.0
11E	Sacul gravelly fine sandy loam, 15 to 35 percent slopes	9,579	2.4
12C	Saffell gravelly fine sandy loam, 1 to 8 percent slopes	3,887	1.0
12D	Saffell gravelly fine sandy loam, 8 to 15 percent slopes	1,385	0.3
12E	Saffell gravelly fine sandy loam, 15 to 35 percent slopes	3,259	0.8
13A	Sardis silt loam, 0 to 1 percent slopes, frequently flooded	17,821	4.4
14C	Sawyer very fine sandy loam, 1 to 8 percent slopes	21,093	5.2
15B	Smithton fine sandy loam, 0 to 2 percent slopes	34,643	8.5
16B	Stough fine sandy loam, 1 to 3 percent slopes	49,191	12.1
17A	Una silty clay loam, 0 to 1 percent slopes, frequently flooded	12,176	3.0
18B	Urbo silty clay loam, 0 to 2 percent slopes, frequently flooded	2,941	0.7
19C	Warnock fine sandy loam, 1 to 7 percent slopes	48,153	11.9
20	Water	1,878	0.5
21C	Wilcox silty clay loam, 1 to 8 percent slopes	2,460	0.6
21D	Wilcox silty clay loam, 8 to 15 percent slopes	980	0.2
	Total	405,401	100.0

* Less than 0.1 percent.

Table 5.--Prime Farmland with Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1B	Adaton silt loam, 0 to 2 percent slopes (where drained)	8,042	2.0
2B	Amy silt loam, 0 to 2 percent slopes (where drained)	15,638	3.9
4B	Gurdon silt loam, 1 to 3 percent slopes (where drained)	5,085	1.3
7C	Pikeville fine sandy loam, 1 to 8 percent slopes	15,593	3.8
15B	Smithton fine sandy loam, 0 to 2 percent slopes (where drained)	34,643	8.5
16B	Stough fine sandy loam, 1 to 3 percent slopes (where drained)	49,191	12.1
19C	Warnock fine sandy loam, 1 to 7 percent slopes	48,153	11.9
	Total	176,345	43.5

Table 6.--Land Capability and Yields per Acre

[Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	*AUM*	*AUM*
1B: Adaton	3w	8.0	---	8.0
2B: Amy	3w	7.5	6.0	7.0
3A: Bibb	5w	---	5.0	5.0
4: Dam.				
4B: Gurdon	2e	8.0	7.0	8.5
5A: Guyton	5w	---	4.0	---
6B: Ouachita	5w	7.0	7.0	9.0
7C: Pikeville	4e	7.5	5.5	7.5
8: Pits	8	---	---	---
9C: Rosalie	3s	---	5.5	6.5
10C: Sacul	4e	7.5	6.5	7.5
10D: Sacul	6e	6.5	5.5	7.0
10E: Sacul	7e	6.5	5.5	7.0
11C: Sacul	4e	7.5	6.5	7.5
11D: Sacul	6e	6.5	5.5	7.0
11E: Sacul	6e	6.5	5.5	7.0
12C: Saffell	4e	5.5	4.5	6.0
12D: Saffell	6e	5.0	4.0	5.5
12E: Saffell	6e	5.5	4.0	5.5

Table 6.--Land Capability and Yields per Acre--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	*AUM*	*AUM*
13A:		6.0	7.0	9.0
Sardis	5w			
14C:		---	7.0	9.0
Sawyer	3e			
15B:		7.5	7.0	8.0
Smithton	3w			
16B:		8.0	---	8.0
Stough	2w			
17A:		---	7.0	---
Una	5w			
18B:		---	---	12.0
Urbo	5w			
19C:		7.0	7.0	8.0
Warnock	3e			
20:				
Water.				
21C:		8.0	6.5	---
Wilcox	3e			
21D:		6.0	5.5	6.0
Wilcox	6e			

Table 7.--Forestland Productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
1B:				
Adaton	Loblolly pine	93	114	Loblolly pine,
	Sweetgum	80	---	Shumard's oak,
	Water oak	80	---	sweetgum
2B:				
Amy	Loblolly pine	93	129	Loblolly pine,
	Shortleaf pine	80	---	shortleaf pine,
	Sweetgum	90	---	sweetgum
3A:				
Bibb	Blackgum	---	---	Eastern cottonwood,
	Loblolly pine	90	---	sweetgum, willow
	Sweetgum	90	---	oak
	Water oak	90	---	
	Willow oak	90	86	
4:				
Dam.				
4B:				
Gurdon	Loblolly pine	95	143	Cherrybark oak,
	Shortleaf pine	85	---	loblolly pine,
	Shumard's oak	---	---	shortleaf pine,
	Sweetgum	95	---	Shumard's oak,
	Willow oak	---	---	sweetgum
5A:				
Guyton	Eastern cottonwood	---	---	Green ash, Nuttall
	Green ash	100	---	oak, water oak
	Loblolly pine	100	---	
	Nuttall oak	---	---	
	Sugarberry	---	---	
	Sweetgum	---	---	
	Water oak	85	86	
6B:				
Ouachita	Eastern cottonwood	100	---	American sycamore,
	Loblolly pine	100	143	eastern
	Sweetgum	100	---	cottonwood,
				loblolly pine,
				Nuttall oak,
				sweetgum
7C:				
Pikeville	Loblolly pine	88	114	Loblolly pine
	Shortleaf pine	70	---	
8:				
Pits.				
9C:				
Rosalie	Loblolly pine	95	114	Loblolly pine,
	Shortleaf pine	70	---	shortleaf pine
10C:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
10D:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine
10E:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine
11C:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine
11D:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine
11E:				
Sacul	Loblolly pine	94	114	Loblolly pine,
	Shortleaf pine	74	---	shortleaf pine
12C:				
Saffell	Loblolly pine	74	86	Loblolly pine,
	Shortleaf pine	65	---	shortleaf pine
	White oak	---	---	
12D:				
Saffell	Loblolly pine	74	86	Loblolly pine,
	Shortleaf pine	65	---	shortleaf pine
	White oak	---	---	
12E:				
Saffell	Loblolly pine	74	86	Loblolly pine,
	Shortleaf pine	65	---	shortleaf pine
	White oak	---	---	
13A:				
Sardis	Cherrybark oak	95	---	Cherrybark oak,
	Loblolly pine	100	143	loblolly pine,
	Sweetgum	100	---	shortleaf pine,
	Water oak	96	---	sweetgum
14C:				
Sawyer	Loblolly pine	95	143	Loblolly pine,
	Shortleaf pine	83	---	shortleaf pine
15B:				
Smithton	Cherrybark oak	85	---	Cherrybark oak,
	Loblolly pine	90	129	loblolly pine,
	Shortleaf pine	76	---	shortleaf pine,
	Sweetgum	86	---	Shumard's oak
	Water oak	85	---	
16B:				
Stough	Cherrybark oak	85	---	Loblolly pine,
	Loblolly pine	94	129	sweetgum
	Sweetgum	85	---	
	Water oak	80	---	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
17A:				
Una	**Cherrybark oak**	**90**	**---**	**Green ash, Nuttall oak, sweetgum, water tupelo**
	Eastern cottonwood	**85**	**---**	
	Green ash	**75**	**---**	
	Nuttall oak	**95**	**---**	
	Sweetgum	**90**	**---**	
	Water oak	**90**	**---**	
	Water tupelo	**80**	**---**	
	Willow oak	**90**	**86**	
18B:				
Urbo	**Cherrybark oak**	**99**	**---**	**American sycamore, eastern cottonwood, loblolly pine, sweetgum**
	Eastern cottonwood	**105**	**143**	
	Green ash	**93**	**---**	
	Sweetgum	**98**	**---**	
19C:				
Warnock	**Loblolly pine**	**92**	**129**	**Loblolly pine, shortleaf pine**
	Shortleaf pine	**77**	**---**	
20:				
Water.				
21C:				
Wilcox	**Loblolly pine**	**83**	**116**	**Loblolly pine, shortleaf pine**
	Shortleaf pine	**74**	**116**	
	Sweetgum	**75**	**68**	
21D:				
Wilcox	**Loblolly pine**	**83**	**116**	**Loblolly pine, shortleaf pine**
	Shortleaf pine	**74**	**116**	
	Sweetgum	**75**	**68**	

Table 8.--Forestland Planting and Harvesting

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Stickiness; high plasticity index	0.50	Moderately suited Low strength	0.50
2B:							
Amy	90	Well suited		Well suited		Moderately suited Low strength	0.50
3A:							
Bibb	95	Well suited		Well suited		Well suited	
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Well suited		Well suited		Moderately suited Low strength	0.50
5A:							
Guyton	85	Well suited		Well suited		Moderately suited Low strength	0.50
6B:							
Ouachita	80	Well suited		Well suited		Moderately suited Low strength	0.50
7C:							
Pikeville	90	Well suited		Moderately suited Slope	0.50	Well suited	
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Well suited		Moderately suited Slope	0.50	Well suited	
10C:							
Sacul	85	Well suited		Moderately suited Slope	0.50	Well suited	
10D:							
Sacul	80	Well suited		Moderately suited Slope	0.50	Well suited	
10E:							
Sacul	80	Well suited		Poorly suited Slope	0.75	Moderately suited Slope	0.50

Table 8.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11C:							
Sacul	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
11D:							
Sacul	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
11E:							
Sacul	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
12C:							
Saffell	90	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
				Slope	0.50		
12D:							
Saffell	90	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
				Slope	0.50		
12E:							
Saffell	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
13A:							
Sardis	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
14C:							
Sawyer	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
15B:							
Smithton	90	Well suited		Well suited		Well suited	
16B:							
Stough	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
17A:							
Una	75	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
						Stickiness; high plasticity index	0.50
18B:							
Urbo	84	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
19C:							
Warnock	80	Well suited		Well suited		Well suited	

Table 8.--Forestland Planting and Harvesting--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index	0.75	Moderately suited Low strength	0.50
21D:							
Wilcox	90	Poorly suited Stickiness; high plasticity index	0.75	Poorly suited Stickiness; high plasticity index Slope	0.75 0.50	Moderately suited Low strength	0.50

Table 9.--Forestland Site Preparation

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1B:					
Adaton	78	Well suited		Well suited	
2B:					
Amy	90	Well suited		Well suited	
3A:					
Bibb	95	Well suited		Well suited	
4:					
Dam	100	Not rated		Not rated	
4B:					
Gurdon	90	Well suited		Well suited	
5A:					
Guyton	85	Well suited		Well suited	
6B:					
Ouachita	80	Well suited		Well suited	
7C:					
Pikeville	90	Well suited		Well suited	
8:					
Pits	100	Not rated		Not rated	
9C:					
Rosalie	90	Well suited		Well suited	
10C:					
Sacul	85	Well suited		Well suited	
10D:					
Sacul	80	Well suited		Well suited	
10E:					
Sacul	80	Poorly suited Slope	0.50	Poorly suited Slope	0.50
11C:					
Sacul	90	Well suited		Well suited	
11D:					
Sacul	90	Well suited		Well suited	
11E:					
Sacul	90	Poorly suited Slope	0.50	Poorly suited Slope	0.50
12C:					
Saffell	90	Well suited		Well suited	

Table 9.--Forestland Site Preparation--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12D:					
Saffell	90	Well suited		Well suited	
12E:					
Saffell	90	Poorly suited Slope	0.50	Poorly suited Slope	0.50
13A:					
Sardis	75	Well suited		Well suited	
14C:					
Sawyer	80	Well suited		Well suited	
15B:					
Smithton	90	Well suited		Well suited	
16B:					
Stough	85	Well suited		Well suited	
17A:					
Una	75	Poorly suited Stickiness; high plasticity index	0.50	Well suited	
18B:					
Urbo	84	Well suited		Well suited	
19C:					
Warnock	80	Well suited		Well suited	
20:					
Water	100	Not rated		Not rated	
21C:					
Wilcox	85	Poorly suited Stickiness; high plasticity index	0.50	Well suited	
21D:					
Wilcox	90	Poorly suited Stickiness; high plasticity index	0.50	Well suited	

Table 10.--Hazard of Erosion and Suitability for Roads on Forestland

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
2B:							
Amy	90	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
3A:							
Bibb	95	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
5A:							
Guyton	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
6B:							
Ouachita	80	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
7C:							
Pikeville	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
10C:							
Sacul	85	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
10D:							
Sacul	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50

Table 10.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10E:							
Sacul	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
11C:							
Sacul	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
11D:							
Sacul	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
11E:							
Sacul	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
12C:							
Saffell	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
12D:							
Saffell	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
12E:							
Saffell	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
13A:							
Sardis	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
14C:							
Sawyer	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
15B:							
Smithton	90	Slight		Slight		Poorly suited	
						Wetness	1.00
16B:							
Stough	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Wetness	0.50
17A:							
Una	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
						Stickiness; high plasticity index	0.50
18B:							
Urbo	84	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50

Table 10.--Hazard of Erosion and Suitability for Roads on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19C:							
Warnock	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
21D:							
Wilcox	90	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50

Table 11.--Haul Roads, Log Landings, and Soil Rutting on Forestland

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Moderate Low strength	 0.50	Poorly suited Wetness Low strength	 1.00 0.50	Severe Low strength	 1.00
2B:							
Amy	90	Moderate Low strength	 0.50	Poorly suited Wetness Low strength	 1.00 0.50	Severe Low strength	 1.00
3A:							
Bibb	95	Severe Flooding	 1.00	Poorly suited Flooding Wetness	 1.00 1.00	Moderate Low strength	 0.50
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Slight		Moderately suited Low strength Wetness	 0.50 0.50	Severe Low strength	 1.00
5A:							
Guyton	85	Severe Flooding Low strength	 1.00 0.50	Poorly suited Flooding Wetness Low strength	 1.00 1.00 0.50	Severe Low strength	 1.00
6B:							
Ouachita	80	Severe Flooding Low strength	 1.00 0.50	Poorly suited Flooding Low strength	 1.00 0.50	Severe Low strength	 1.00
7C:							
Pikeville	90	Slight		Well suited		Moderate Low strength	 0.50
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Slight		Well suited		Moderate Low strength	 0.50
10C:							
Sacul	85	Slight		Well suited		Moderate Low strength	 0.50

Table 11.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10D:							
Sacul	80	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
10E:							
Sacul	80	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
11C:							
Sacul	90	Slight		Well suited		Moderate	
						Low strength	0.50
11D:							
Sacul	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
11E:							
Sacul	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
12C:							
Saffell	90	Slight		Well suited		Moderate	
						Low strength	0.50
12D:							
Saffell	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
12E:							
Saffell	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
13A:							
Sardis	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
14C:							
Sawyer	80	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
15B:							
Smithton	90	Moderate		Poorly suited		Moderate	
		Low strength	0.50	Wetness	1.00	Low strength	0.50
16B:							
Stough	85	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Wetness	0.50		
17A:							
Una	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
		Stickiness/slope	0.50	Low strength	0.50		
				Stickiness; high plasticity index	0.50		

Table 11.--Haul Roads, Log Landings, and Soil Rutting on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18B:							
Urbo	84	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
19C:							
Warnock	80	Slight		Well suited		Moderate	
						Low strength	0.50
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
21D:							
Wilcox	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		

Table 12.--Damage by Fire and Seedling Mortality on Forestland

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1B:					
Adaton	78	High Texture/surface depth/rock fragments	1.00	High Wetness	1.00
2B:					
Amy	90	High Texture/surface depth/rock fragments	1.00	High Wetness	1.00
3A:					
Bibb	95	Low Texture/rock fragments	0.10	High Wetness	1.00
4:					
Dam	100	Not rated		Not rated	
4B:					
Gurdon	90	Moderate Texture/surface depth/rock fragments	0.50	Low	
5A:					
Guyton	85	Moderate Texture/surface depth/rock fragments	0.50	High Wetness	1.00
6B:					
Ouachita	80	Moderate Texture/rock fragments	0.50	High Wetness	1.00
7C:					
Pikeville	90	High Texture/surface depth/rock fragments	1.00	Low	
8:					
Pits	100	Not rated		Not rated	
9C:					
Rosalie	90	High Texture/rock fragments	1.00	Low	

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10C:					
Sacul	85	Low Texture/rock fragments	0.10	Low	
10D:					
Sacul	80	Low Texture/rock fragments	0.10	Low	
10E:					
Sacul	80	Low Texture/rock fragments	0.10	Low	
11C:					
Sacul	90	Low Texture/rock fragments	0.10	Low	
11D:					
Sacul	90	Low Texture/rock fragments	0.10	Low	
11E:					
Sacul	90	Low Texture/rock fragments	0.10	Low	
12C:					
Saffell	90	High Texture/surface depth/rock fragments	1.00	Low	
12D:					
Saffell	90	High Texture/surface depth/rock fragments	1.00	Low	
12E:					
Saffell	90	High Texture/surface depth/rock fragments	1.00	Low	
13A:					
Sardis	75	Low Texture/rock fragments	0.10	High Wetness	1.00
14C:					
Sawyer	80	Moderate Texture/surface depth/rock fragments	0.50	Low	

Table 12.--Damage by Fire and Seedling Mortality on Forestland--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
15B:					
Smithton	90	Moderate Texture/surface depth/rock fragments	0.50	High Wetness	1.00
16B:					
Stough	85	High Texture/surface depth/rock fragments	1.00	High Wetness	1.00
17A:					
Una	75	Moderate Texture/surface depth/rock fragments	0.50	High Wetness	1.00
18B:					
Urbo	84	Low Texture/rock fragments	0.10	High Wetness	1.00
19C:					
Warnock	80	High Texture/surface depth/rock fragments	1.00	Low	
20:					
Water	100	Not rated		Not rated	
21C:					
Wilcox	85	Moderate Texture/rock fragments	0.50	Low	
21D:					
Wilcox	90	Moderate Texture/rock fragments	0.50	Low	

Table 13.--Camp Areas, Picnic Areas, and Playgrounds

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.96	Flooding	1.00
		Slow water movement	0.96	Flooding	0.40	Slow water movement	0.96
6B:							
Ouachita	80	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
7C:							
Pikeville	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.70	Too sandy	0.70	Slope	0.88
						Too sandy	0.70

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Slope	0.88
						Too sandy	0.01
10D:							
Sacul	80	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
11C:							
Sacul	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Gravel content	1.00
		Gravel content	0.43	Gravel content	0.43	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Slope	0.88
						Too sandy	0.01
11D:							
Sacul	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Gravel content	1.00
		Gravel content	0.43	Gravel content	0.43	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Gravel content	1.00
		Gravel content	0.43	Gravel content	0.43	Slow water movement	0.96
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
12C:							
Saffell	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Gravel content	0.96
						Slope	0.88
						Too sandy	0.01
12D:							
Saffell	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Too sandy	0.01	Too sandy	0.01	Gravel content	0.96
						Too sandy	0.01

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.01	Too sandy	0.01	Gravel content	0.96
						Too sandy	0.01
13A:							
Sardis	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
14C:							
Sawyer	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Slow water movement	0.26	Slope	0.88
		Slow water movement	0.26	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slow water movement	0.26
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
16B:							
Stough	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
17A:							
Una	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Flooding	1.00
		Slow water movement	1.00	Flooding	0.40	Slow water movement	1.00
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Flooding	1.00	Slow water movement	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	0.75	Slow water movement	1.00
		Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
19C:							
Warnock	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Gravel content	0.14
20:							
Water	100	Not rated		Not rated		Not rated	

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21C:							
Wilcox	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.50
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	1.00

Table 14.--Paths, Trails, and Golf Fairways

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
2B:							
Amy	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
3A:							
Bibb	95	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
5A:							
Guyton	85	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
6B:							
Ouachita	80	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
7C:							
Pikeville	90	Not limited		Not limited		Not limited	
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Somewhat limited Too sandy	0.70	Somewhat limited Too sandy	0.70	Not limited	
10C:							
Sacul	85	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Not limited	
10D:							
Sacul	80	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Slope	0.63

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10E:							
Sacul	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.01	Slope	1.00
		Too sandy	0.01				
11C:							
Sacul	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Gravel content	0.43
11D:							
Sacul	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Slope	0.63
						Gravel content	0.43
11E:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.01	Slope	1.00
		Too sandy	0.01			Gravel content	0.43
12C:							
Saffell	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Droughty	0.03
12D:							
Saffell	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Slope	0.63
						Droughty	0.03
12E:							
Saffell	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.01	Slope	1.00
		Too sandy	0.01			Droughty	0.03
13A:							
Sardis	75	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
						Depth to saturated zone	0.03
14C:							
Sawyer	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
16B:							
Stough	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Droughty	0.03
17A:							
Una	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 14.--Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
18B:							
Urbo	84	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
19C:							
Warnock	80	Not limited		Not limited		Not limited	
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Not limited		Not limited		Not limited	
21D:							
Wilcox	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63

Table 15a.--Wildlife Habitat (Part 1)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Flooding	1.00
		Flooding	0.50	Flooding	0.50	Wetness	1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.99	Wetness	0.99	Wetness	0.99
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Flooding	1.00
		Flooding	1.00	Flooding	1.00	Wetness	1.00
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
6B:							
Ouachita	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
7C:							
Pikeville	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.99			Droughty	0.99
						Slope	0.12
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.94	Too sandy	0.50	Droughty	0.94
		Too sandy	0.50			Slope	0.12

Table 15a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
		Droughty	0.36			Droughty	0.36
						Slope	0.12
10D:							
Sacul	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Percs slowly	0.48	Percs slowly	0.48	Potentially or highly erodible	1.00
		Droughty	0.36			Percs slowly	0.48
						Droughty	0.36
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Slope	0.78	Slope	0.78	Potentially or highly erodible	1.00
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
		Droughty	0.36			Droughty	0.36
11C:							
Sacul	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Too gravelly, cobbly, or stony	0.51	Too gravelly, cobbly, or stony	0.51	Too gravelly, cobbly, or stony	0.51
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
		Droughty	0.23			Droughty	0.23
						Slope	0.12
11D:							
Sacul	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Too gravelly, cobbly, or stony	0.51	Too gravelly, cobbly, or stony	0.51	Potentially or highly erodible	1.00
		Percs slowly	0.48	Percs slowly	0.48	Too gravelly, cobbly, or stony	0.51
		Droughty	0.23			Percs slowly	0.48
						Droughty	0.23
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Slope	0.78	Slope	0.78	Potentially or highly erodible	1.00
		Too gravelly, cobbly, or stony	0.51	Too gravelly, cobbly, or stony	0.51	Too gravelly, cobbly, or stony	0.51
		Percs slowly	0.48	Percs slowly	0.48	Percs slowly	0.48
		Droughty	0.23			Droughty	0.23

Table 15a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12C:							
Saffell	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Droughty	0.02	Droughty	1.00
						Slope	0.12
12D:							
Saffell	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Droughty	1.00	Droughty	0.02	Potentially or highly erodible	1.00
						Droughty	1.00
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Droughty	1.00	Slope	0.78	Potentially or highly erodible	1.00
		Slope	0.78	Droughty	0.02	Droughty	1.00
13A:							
Sardis	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	0.44	Wetness	0.44	Wetness	0.44
14C:							
Sawyer	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.75	Wetness	0.75	Wetness	0.75
						Slope	0.12
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
16B:							
Stough	85	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Droughty	0.02	Droughty	1.00
17A:							
Una	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
		Too clayey	0.57	Too clayey	0.57	Too clayey	0.57
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
		Wetness	0.99	Wetness	0.99	Wetness	0.99
		Too clayey	0.19	Too clayey	0.19	Too clayey	0.19

Table 15a.--Wildlife Habitat (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19C:							
Warnock	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.16			Droughty	0.16
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Too clayey	0.57	Too clayey	0.57	Too clayey	0.57
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Slope	1.00
		Too clayey	0.57	Too clayey	0.57	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Too clayey	0.57
						Percs slowly	0.50

Table 15b.--Wildlife Habitat (Part 2)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Irrigated freshwater wetland plants		Upland wild herbaceous plants		Upland shrubs and vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Somewhat limited		Very limited		Very limited	
		Too acid	0.78	Wetness	1.00	Wetness	1.00
		Seepage	0.07				
2B:							
Amy	90	Somewhat limited		Very limited		Very limited	
		Too acid	0.99	Wetness	1.00	Wetness	1.00
		Seepage	0.07				
3A:							
Bibb	95	Somewhat limited		Very limited		Very limited	
		Too acid	0.99	Wetness	1.00	Wetness	1.00
		Seepage	0.07				
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.92	Wetness	0.99	Wetness	0.99
		Seepage	0.07				
5A:							
Guyton	85	Somewhat limited		Very limited		Very limited	
		Too acid	0.92	Wetness	1.00	Wetness	1.00
		Seepage	0.07				
6B:							
Ouachita	80	Very limited		Not limited		Not limited	
		Too dry	1.00				
		Too acid	0.78				
		Seepage	0.07				
7C:							
Pikeville	90	Very limited		Not limited		Not limited	
		Too dry	1.00				
		Too acid	0.78				
		Seepage	0.77				
		Slope	0.32				
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Very limited		Somewhat limited		Not limited	
		Seepage	1.00	Too sandy	0.50		
		Too acid	0.99				
		Too sandy	0.50				
		Slope	0.32				
		Too dry	0.01				

Table 15b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Irrigated freshwater wetland plants		Upland wild herbaceous plants		Upland shrubs and vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Somewhat limited		Not limited		Not limited	
		Too acid	0.99				
		Slope	0.32				
		Seepage	0.07				
		Too dry	0.01				
10D:							
Sacul	80	Very limited		Not limited		Not limited	
		Slope	1.00				
		Too acid	0.99				
		Seepage	0.07				
		Too dry	0.01				
10E:							
Sacul	80	Very limited		Not limited		Not limited	
		Slope	1.00				
		Too acid	0.99				
		Seepage	0.07				
		Too dry	0.01				
11C:							
Sacul	90	Somewhat limited		Not limited		Not limited	
		Too acid	0.99				
		Slope	0.32				
		Seepage	0.07				
		Too dry	0.01				
11D:							
Sacul	90	Very limited		Not limited		Not limited	
		Slope	1.00				
		Too acid	0.99				
		Seepage	0.07				
		Too dry	0.01				
11E:							
Sacul	90	Very limited		Not limited		Not limited	
		Slope	1.00				
		Too acid	0.99				
		Seepage	0.07				
		Too dry	0.01				
12C:							
Saffell	90	Very limited		Somewhat limited		Somewhat limited	
		Too dry	1.00	Droughty	0.02	Droughty	0.02
		Too acid	0.78				
		Seepage	0.77				
		Slope	0.32				
12D:							
Saffell	90	Very limited		Somewhat limited		Somewhat limited	
		Too dry	1.00	Droughty	0.02	Droughty	0.02
		Slope	1.00				
		Too acid	0.78				
		Seepage	0.77				

Table 15b.--Wildlife Habitat (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Irrigated freshwater wetland plants		Upland wild herbaceous plants		Upland shrubs and vines	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12E:							
Saffell	90	Very limited		Somewhat limited		Somewhat limited	
		Too dry	1.00	Droughty	0.02	Droughty	0.02
		Slope	1.00				
		Too acid	0.78				
		Seepage	0.77				
13A:							
Sardis	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.44	Wetness	0.44	Wetness	0.44
		Seepage	0.07				
14C:							
Sawyer	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.78	Wetness	0.75	Wetness	0.75
		Slope	0.32				
		Seepage	0.07				
15B:							
Smithton	90	Somewhat limited		Very limited		Very limited	
		Too acid	0.78	Wetness	1.00	Wetness	1.00
		Seepage	0.07				
16B:							
Stough	85	Somewhat limited		Very limited		Very limited	
		Too acid	0.99	Wetness	1.00	Wetness	1.00
		Seepage	0.07	Droughty	0.02	Droughty	0.02
17A:							
Una	75	Somewhat limited		Very limited		Very limited	
		Too acid	0.78	Wetness	1.00	Wetness	1.00
				Too clayey	0.57	Too clayey	0.57
18B:							
Urbo	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.78	Wetness	0.99	Wetness	0.99
				Too clayey	0.19	Too clayey	0.19
19C:							
Warnock	80	Somewhat limited		Not limited		Not limited	
		Too acid	0.99				
		Seepage	0.77				
		Slope	0.08				
		Too dry	0.01				
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.99	Too clayey	0.57	Too clayey	0.57
		Slope	0.08				
		Too dry	0.01				
21D:							
Wilcox	90	Very limited		Somewhat limited		Somewhat limited	
		Slope	1.00	Too clayey	0.57	Too clayey	0.57
		Too acid	0.99				
		Too dry	0.01				

Table 15c.--Wildlife Habitat (Part 3)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited Depth to saturated zone	1.00	Very limited Wetness	1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
2B:							
Amy	90	Very limited Depth to saturated zone	1.00	Very limited Wetness	1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
3A:							
Bibb	95	Very limited Depth to saturated zone	1.00	Very limited Wetness	1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Very limited Depth to saturated zone	1.00	Somewhat limited Wetness	0.99	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
5A:							
Guyton	85	Very limited Depth to saturated zone	1.00	Very limited Wetness	1.00	Very limited Depth to saturated zone Growing season wetness	1.00 1.00
6B:							
Ouachita	80	Not limited		Not limited		Not limited	
7C:							
Pikeville	90	Not limited		Not limited		Not limited	
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99

Table 15c.--Wildlife Habitat (Part 3)--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
10D:							
Sacul	80	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
10E:							
Sacul	80	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
11C:							
Sacul	90	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
11D:							
Sacul	90	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
11E:							
Sacul	90	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Wetness	0.09	Very limited Growing season wetness Depth to saturated zone	1.00 0.99
12C:							
Saffell	90	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02
12D:							
Saffell	90	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02
12E:							
Saffell	90	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02	Somewhat limited Droughty	0.02
13A:							
Sardis	75	Very limited Depth to saturated zone	1.00	Somewhat limited Wetness	0.68	Very limited Depth to saturated zone Growing season wetness	1.00 1.00

Table 15c.--Wildlife Habitat (Part 3)--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14C:							
Sawyer	80	Very limited Depth to saturated zone	 1.00	Somewhat limited Wetness	 0.86	Very limited Depth to saturated zone Growing season wetness	 1.00 1.00
15B:							
Smithton	90	Very limited Depth to saturated zone	 1.00	Very limited Wetness	 1.00	Very limited Depth to saturated zone Growing season wetness	 1.00 1.00
16B:							
Stough	85	Very limited Depth to saturated zone Droughty	 1.00 0.02	Very limited Wetness Droughty	 1.00 0.02	Very limited Depth to saturated zone Growing season wetness Droughty	 1.00 1.00 0.02
17A:							
Una	75	Very limited Depth to saturated zone	 1.00	Very limited Wetness	 1.00	Very limited Depth to saturated zone Growing season wetness	 1.00 1.00
18B:							
Urbo	84	Very limited Depth to saturated zone	 1.00	Somewhat limited Wetness	 0.99	Very limited Depth to saturated zone Growing season wetness	 1.00 1.00
19C:							
Warnock	80	Somewhat limited Depth to saturated zone	 0.99	Somewhat limited Wetness	 0.09	Very limited Growing season wetness Depth to saturated zone	 1.00 0.99
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Somewhat limited Depth to saturated zone	 0.99	Somewhat limited Wetness	 0.09	Very limited Growing season wetness Depth to saturated zone	 1.00 0.99
21D:							
Wilcox	90	Somewhat limited Depth to saturated zone	 0.99	Somewhat limited Wetness	 0.09	Very limited Growing season wetness Depth to saturated zone	 1.00 0.99

Table 15d.--Wildlife Habitat (Part 4)

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.78
2B:							
Amy	90	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.99
3A:							
Bibb	95	Not limited		Not limited		Somewhat limited	
						Too acid	0.99
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.92
		Too dry	0.14			Too dry	0.14
5A:							
Guyton	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Long flooding	0.50	Flooding	0.50	Too acid	0.92
6B:							
Ouachita	80	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Long flooding	0.50	Flooding	0.50	Too acid	0.78
7C:							
Pikeville	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
		Too sandy	0.50				
10C:							
Sacul	85	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99

Table 15d.--Wildlife Habitat (Part 4)--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10D:							
Sacul	80	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
10E:							
Sacul	80	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
11C:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
11D:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
11E:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
12C:							
Saffell	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.02	Too acid	0.78
12D:							
Saffell	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.02	Too acid	0.78
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.02	Too acid	0.78
13A:							
Sardis	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Too dry	0.76	Flooding	0.50	Too dry	0.76
		Long flooding	0.50			Too acid	0.44
14C:							
Sawyer	80	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.78
		Too dry	0.53			Too dry	0.53

Table 15d.--Wildlife Habitat (Part 4)--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15B:							
Smithton	90	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.78
16B:							
Stough	85	Very limited		Somewhat limited		Somewhat limited	
		Infrequent flooding	1.00	Droughty	0.02	Too acid	0.99
		Too dry	0.04			Too dry	0.04
17A:							
Una	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Long flooding	0.50	Flooding	0.50	Too acid	0.78
18B:							
Urbo	84	Somewhat limited		Somewhat limited		Somewhat limited	
		Long flooding	0.50	Flooding	0.50	Too acid	0.78
		Too dry	0.14			Too dry	0.14
19C:							
Warnock	80	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
21D:							
Wilcox	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99

Table 16.--Dwellings and Small Commercial Buildings

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
6B:							
Ouachita	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
7C:							
Pikeville	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.95	Slope	0.12
10C:							
Sacul	85	Not limited		Very limited		Somewhat limited	
				Shrink-swell	1.00	Slope	0.12
				Depth to saturated zone	0.95		

Table 16.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10D:							
Sacul	80	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Shrink-swell	1.00	Slope	1.00
				Depth to saturated zone	0.95		
				Slope	0.63		
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Shrink-swell	1.00		
				Depth to saturated zone	0.95		
11C:							
Sacul	90	Not limited		Very limited		Somewhat limited	
				Shrink-swell	1.00	Slope	0.12
				Depth to saturated zone	0.95		
11D:							
Sacul	90	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Shrink-swell	1.00	Slope	1.00
				Depth to saturated zone	0.95		
				Slope	0.63		
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Shrink-swell	1.00		
				Depth to saturated zone	0.95		
12C:							
Saffell	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
12D:							
Saffell	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
13A:							
Sardis	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
14C:							
Sawyer	80	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
						Slope	0.12

Table 16.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
16B:							
Stough	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
17A:							
Una	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
19C:							
Warnock	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.95		
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.95		
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Depth to saturated zone	0.95	Shrink-swell	1.00
				Slope	0.63		

Table 17.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	0.78	Cutbanks cave	0.10		
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Low strength	0.22	Cutbanks cave	0.10		
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
6B:							
Ouachita	80	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Low strength	0.22	Cutbanks cave	0.10		
7C:							
Pikeville	90	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.95		

Table 17.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.95		
				Too clayey	0.50		
				Cutbanks cave	0.10		
10D:							
Sacul	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Depth to saturated zone	0.95	Slope	0.63
				Slope	0.63		
				Too clayey	0.50		
				Cutbanks cave	0.10		
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.95		
				Too clayey	0.50		
				Cutbanks cave	0.10		
11C:							
Sacul	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Gravel content	0.43
				Depth to saturated zone	0.95		
				Too clayey	0.28		
11D:							
Sacul	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Depth to saturated zone	0.95	Gravel content	0.43
				Slope	0.63		
				Too clayey	0.28		
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Gravel content	0.43
				Depth to saturated zone	0.95		
				Too clayey	0.28		
12C:							
Saffell	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.03
12D:							
Saffell	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Droughty	0.03
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.03

Table 17.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13A:							
Sardis	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80	Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Cutbanks cave	0.10		
14C:							
Sawyer	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Shrink-swell	0.50	Too clayey	0.12		
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
16B:							
Stough	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.94	Depth to saturated zone	1.00	Depth to saturated zone	0.94
				Cutbanks cave	0.10	Droughty	0.03
17A:							
Una	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80	Depth to saturated zone	0.75
		Shrink-swell	1.00	Too clayey	0.12		
		Depth to saturated zone	0.75	Cutbanks cave	0.10		
19C:							
Warnock	80	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.95		
				Cutbanks cave	0.10		
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	1.00	Depth to saturated zone	0.95		
				Too clayey	0.88		

Table 17.--Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21D:							
Wilcox	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Slope	0.63
		Shrink-swell	1.00	Depth to saturated zone	0.95		
		Slope	0.63	Too clayey	0.88		
				Slope	0.63		

Table 18.--Sewage Disposal

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1B:					
Adaton	78	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
2B:					
Amy	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
3A:					
Bibb	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
4:					
Dam	100	Not rated		Not rated	
4B:					
Gurdon	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
5A:					
Guyton	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
6B:					
Ouachita	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00		
7C:					
Pikeville	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.68
8:					
Pits	100	Not rated		Not rated	

Table 18.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
9C:					
Rosalie	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	0.46	Depth to saturated zone	1.00
				Slope	0.68
10C:					
Sacul	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.53
10D:					
Sacul	80	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.53
10E:					
Sacul	80	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Seepage	0.53
11C:					
Sacul	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.53
11D:					
Sacul	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.53
11E:					
Sacul	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Seepage	0.53
12C:					
Saffell	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.68

Table 18.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12D:					
Saffell	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
		Slow water movement	0.50		
12E:					
Saffell	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
13A:					
Sardis	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
14C:					
Sawyer	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Slope	0.68
15B:					
Smithton	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.53
16B:					
Stough	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
17A:					
Una	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
18B:					
Urbo	84	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		

Table 18.--Sewage Disposal--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
19C:					
Warnock	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
				Slope	0.32
20:					
Water	100	Not rated		Not rated	
21C:					
Wilcox	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.32
		Depth to bedrock	0.36	Depth to soft bedrock	0.01
21D:					
Wilcox	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Depth to soft bedrock	0.01
		Depth to bedrock	0.36		

Table 19.--Landfills

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
6B:							
Ouachita	80	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
7C:							
Pikeville	90	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.91
						Seepage	0.52
8:							
Pits	100	Not rated		Very limited		Not rated	
				Slope	1.00		
9C:							
Rosalie	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.09
				Seepage	1.00		

Table 19.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
						Depth to saturated zone	0.09
10D:							
Sacul	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Hard to compact	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
						Depth to saturated zone	0.09
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
						Depth to saturated zone	0.09
11C:							
Sacul	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.09
11D:							
Sacul	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Slope	0.63
						Depth to saturated zone	0.09
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.09
12C:							
Saffell	90	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Gravel content	1.00
		Too clayey	0.50			Too clayey	0.50
						Seepage	0.22
12D:							
Saffell	90	Very limited		Somewhat limited		Very limited	
		Seepage, bottom layer	1.00	Slope	0.63	Gravel content	1.00
		Slope	0.63			Slope	0.63
		Too clayey	0.50			Too clayey	0.50
						Seepage	0.22

Table 19.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Gravel content	1.00
		Too clayey	0.50			Too clayey	0.50
						Seepage	0.22
13A:							
Sardis	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
14C:							
Sawyer	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
16B:							
Stough	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
17A:							
Una	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Hard to compact	1.00
		Too clayey	1.00			Depth to saturated zone	0.99
19C:							
Warnock	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.09
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.01	Hard to compact	1.00
		Too clayey	1.00			Depth to saturated zone	0.09
						Depth to bedrock	0.01

Table 19.--Landfills--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Slope	0.63	Hard to compact	1.00
		Too clayey	1.00	Depth to bedrock	0.01	Slope	0.63
		Slope	0.63			Depth to saturated zone	0.09
						Depth to bedrock	0.01

Table 20.--Source of Reclamation Material, Roadfill, and Topsoil

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.00	Too acid	0.88
		Water erosion	0.90	Shrink-swell	0.87		
2B:							
Amy	90	Fair		Poor		Poor	
		Too acid	0.12	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.60	Low strength	0.22	Too acid	0.59
		Water erosion	0.90				
3A:							
Bibb	95	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.60			Too acid	0.59
						Rock fragments	0.82
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.14	Wetness depth	0.14
		Too acid	0.20	Low strength	0.78	Too acid	0.76
		Water erosion	0.90				
5A:							
Guyton	85	Fair		Poor		Poor	
		Too acid	0.20	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.60			Too acid	0.76
		Water erosion	0.90				
6B:							
Ouachita	80	Fair		Fair		Fair	
		Too acid	0.32	Low strength	0.78	Too acid	0.88
		Organic matter content low	0.50				
		Water erosion	0.99				
7C:							
Pikeville	90	Fair		Good		Poor	
		Organic matter content low	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.12
						Too acid	0.88
8:							
Pits	100	Not rated		Not rated		Not rated	

Table 20.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9C:							
Rosalie	90	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.14
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12				
		Too sandy	0.14				
10C:							
Sacul	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Shrink-swell	0.80	Too acid	0.98
		Organic matter content low	0.12				
10D:							
Sacul	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Shrink-swell	0.80	Slope	0.37
		Organic matter content low	0.12			Too acid	0.98
10E:							
Sacul	80	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Too acid	0.12	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.80	Too acid	0.98
11C:							
Sacul	90	Fair		Poor		Poor	
		Too acid	0.12	Low strength	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Shrink-swell	0.80	Too acid	0.98
11D:							
Sacul	90	Fair		Poor		Poor	
		Too acid	0.12	Low strength	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Shrink-swell	0.80	Slope	0.37
						Too acid	0.98
11E:							
Sacul	90	Fair		Poor		Poor	
		Too acid	0.12	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Low strength	0.00	Rock fragments	0.00
				Shrink-swell	0.80	Too acid	0.98
12C:							
Saffell	90	Fair		Good		Poor	
		Organic matter content low	0.12			Rock fragments	0.00
		Too acid	0.32			Hard to reclaim (rock fragments)	0.00
						Too acid	0.88

Table 20.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12D:							
Saffell	90	Fair		Good		Poor	
		Organic matter content low	0.12			Rock fragments	0.00
		Too acid	0.32			Hard to reclaim (rock fragments)	0.00
						Slope	0.37
						Too acid	0.88
12E:							
Saffell	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.32			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
13A:							
Sardis	75	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Wetness depth	0.76
		Organic matter content low	0.88	Wetness depth	0.76	Too acid	0.98
		Water erosion	0.99				
14C:							
Sawyer	80	Fair		Poor		Fair	
		Too acid	0.32	Low strength	0.00	Wetness depth	0.53
		Organic matter content low	0.88	Wetness depth	0.53	Too acid	0.88
		Water erosion	0.99	Shrink-swell	0.87		
15B:							
Smithton	90	Fair		Poor		Poor	
		Too acid	0.32	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.60			Too acid	0.88
16B:							
Stough	85	Fair		Fair		Fair	
		Too acid	0.12	Wetness depth	0.04	Wetness depth	0.04
		Organic matter content low	0.12			Too acid	0.59
17A:							
Una	75	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.50	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.60	Shrink-swell	0.12	Too acid	0.88
18B:							
Urbo	84	Fair		Poor		Fair	
		Too acid	0.50	Low strength	0.00	Wetness depth	0.14
		Organic matter content low	0.50	Wetness depth	0.14	Too acid	0.88
		Too clayey	0.98	Shrink-swell	0.31	Too clayey	0.93
		Water erosion	0.99				

Table 20.--Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19C:							
Warnock	80	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12			Rock fragments	0.95
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Shrink-swell	0.12	Too acid	0.59
		Organic matter content low	0.12	Depth to bedrock	0.99		
		Water erosion	0.99				
21D:							
Wilcox	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Shrink-swell	0.12	Slope	0.37
		Organic matter content low	0.12	Depth to bedrock	0.99	Too acid	0.59
		Water erosion	0.99				

Table 21.--Source of Gravel and Sand

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1B:					
Adaton	78	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
2B:					
Amy	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3A:					
Bibb	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
4:					
Dam	100	Not rated		Not rated	
4B:					
Gurdon	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
5A:					
Guyton	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
6B:					
Ouachita	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
7C:					
Pikeville	90	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.15	Bottom layer	0.00
8:					
Pits	100	Not rated		Not rated	
9C:					
Rosalie	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
10C:					
Sacul	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 21.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
10D:					
Sacul	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
10E:					
Sacul	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11C:					
Sacul	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11D:					
Sacul	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11E:					
Sacul	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
12C:					
Saffell	90	Fair		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.07	Bottom layer	0.08
12D:					
Saffell	90	Fair		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.07	Bottom layer	0.08
12E:					
Saffell	90	Fair		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.07	Bottom layer	0.08
13A:					
Sardis	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
14C:					
Sawyer	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
15B:					
Smithton	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
16B:					
Stough	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02

Table 21.--Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
17A:					
Una	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
18B:					
Urbo	84	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
19C:					
Warnock	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
20:					
Water	100	Not rated		Not rated	
21C:					
Wilcox	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
21D:					
Wilcox	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 22.--Ponds and Embankments

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Piping	0.01		
2B:							
Amy	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	1.00		
3A:							
Bibb	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Seepage	0.01		
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	1.00		
5A:							
Guyton	85	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	1.00		
6B:							
Ouachita	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.03	Piping	1.00	Depth to water	1.00
				Seepage	0.02		
7C:							
Pikeville	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.15	Depth to water	1.00
		Slope	0.32				
8:							
Pits	100	Very limited		Not rated		Not rated	
		Slope	1.00				
9C:							
Rosalie	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	0.99	Cutbanks cave	1.00
		Slope	0.32	Depth to saturated zone	0.43	Slow refill	0.27
						Depth to saturated zone	0.25

Table 22.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10C:							
Sacul	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.43	Slow refill	0.96
		Slope	0.32	Piping	0.17	Depth to saturated zone	0.25
						Cutbanks cave	0.10
10D:							
Sacul	80	Very limited		Somewhat limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.43	Slow refill	0.96
		Seepage	0.72	Piping	0.17	Depth to saturated zone	0.25
						Cutbanks cave	0.10
10E:							
Sacul	80	Very limited		Somewhat limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.43	Slow refill	0.96
		Seepage	0.72	Piping	0.17	Depth to saturated zone	0.25
						Cutbanks cave	0.10
11C:							
Sacul	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.43	Cutbanks cave	1.00
		Slope	0.32	Piping	0.08	Slow refill	0.96
						Depth to saturated zone	0.25
11D:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.43	Cutbanks cave	1.00
		Seepage	0.72	Piping	0.08	Slow refill	0.96
						Depth to saturated zone	0.25
11E:							
Sacul	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.43	Cutbanks cave	1.00
		Seepage	0.72	Piping	0.08	Slow refill	0.96
						Depth to saturated zone	0.25
12C:							
Saffell	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	0.32				
12D:							
Saffell	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.08	Depth to water	1.00
		Seepage	1.00				
12E:							
Saffell	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.08	Depth to water	1.00
		Seepage	1.00				

Table 22.--Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13A:							
Sardis	75	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Slow refill	0.28
				Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
14C:							
Sawyer	80	Somewhat limited		Very limited		Very limited	
		Slope	0.32	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	0.03				
15B:							
Smithton	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
16B:							
Stough	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
				Seepage	0.02		
17A:							
Una	75	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	0.50	Cutbanks cave	0.10
18B:							
Urbo	84	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Hard to pack	0.20	Cutbanks cave	0.10
19C:							
Warnock	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Piping	0.95	Slow refill	0.28
		Slope	0.08	Depth to saturated zone	0.43	Depth to saturated zone	0.25
						Cutbanks cave	0.10
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Somewhat limited		Very limited		Very limited	
		Slope	0.08	Hard to pack	1.00	Slow refill	1.00
		Depth to bedrock	0.01	Depth to saturated zone	0.43	Depth to saturated zone	0.25
				Thin layer	0.01	Cutbanks cave	0.10
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Slow refill	1.00
		Depth to bedrock	0.01	Depth to saturated zone	0.43	Depth to saturated zone	0.25
				Thin layer	0.01	Cutbanks cave	0.10

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1B:							
Adaton	78	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00	Slow water movement	1.00
		Runoff	0.40	Too acid	0.67	Too acid	0.67
		Too acid	0.18				
2B:							
Amy	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.43	Too acid	0.99	Too acid	0.99
		Runoff	0.40				
3A:							
Bibb	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Runoff	0.40				
4:							
Dam	100	Not rated		Not rated		Not rated	
4B:							
Gurdon	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.62	Too acid	1.00	Too acid	1.00
5A:							
Guyton	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.62	Too acid	1.00	Too acid	1.00
		Runoff	0.40				
6B:							
Ouachita	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Slow water movement	0.50	Too acid	0.91	Too acid	0.91
		Too acid	0.32	Slow water movement	0.37	Slow water movement	0.37

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater --Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7C:							
Pikeville	90	Very limited		Very limited		Very limited	
		Dense layer	1.00	Too acid	0.99	Too acid	0.99
		Too acid	0.50	Low adsorption	0.19	Too steep for surface application	0.32
		Low adsorption	0.16	Filtering capacity	0.01	Low adsorption	0.16
		Filtering capacity	0.01			Filtering capacity	0.01
8:							
Pits	100	Not rated		Not rated		Not rated	
9C:							
Rosalie	90	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to saturated zone	0.43	Too acid	0.67	Too acid	0.67
		Too acid	0.18	Depth to saturated zone	0.43	Depth to saturated zone	0.43
						Too steep for surface application	0.32
10C:							
Sacul	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.43	Too acid	0.91	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.43	Depth to saturated zone	0.43
						Too steep for surface application	0.32
10D:							
Sacul	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Slope	0.63	Too acid	0.91	Slow water movement	1.00
		Depth to saturated zone	0.43	Slope	0.63	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.43	Too steep for sprinkler application	0.78
						Depth to saturated zone	0.43

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater --Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10E:							
Sacul	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.43	Too acid	0.91	Too steep for sprinkler application	1.00
		Too acid	0.32	Depth to saturated zone	0.43	Slow water movement	1.00
						Too acid	0.91
						Depth to saturated zone	0.43
11C:							
Sacul	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.43	Too acid	0.91	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.43	Depth to saturated zone	0.43
						Too steep for surface application	0.32
11D:							
Sacul	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Too steep for surface application	1.00
		Slope	0.63	Too acid	0.91	Slow water movement	1.00
		Depth to saturated zone	0.43	Slope	0.63	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.43	Too steep for sprinkler application	0.78
						Depth to saturated zone	0.43
11E:							
Sacul	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Slow water movement	1.00	Too steep for sprinkler application	1.00
		Depth to saturated zone	0.43	Too acid	0.91	Slow water movement	1.00
		Too acid	0.32	Depth to saturated zone	0.43	Too acid	0.91
						Depth to saturated zone	0.43

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater --Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12C:							
Saffell	90	Somewhat limited		Very limited		Very limited	
		Too acid	0.50	Too acid	0.99	Too acid	0.99
		Filtering capacity	0.01	Filtering capacity	0.01	Too steep for surface application	0.32
						Filtering capacity	0.01
12D:							
Saffell	90	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Too acid	0.99	Too steep for surface application	1.00
		Too acid	0.50	Slope	0.63	Too acid	0.99
		Filtering capacity	0.01	Filtering capacity	0.01	Too steep for sprinkler application	0.78
						Filtering capacity	0.01
12E:							
Saffell	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.50	Too acid	0.99	Too steep for sprinkler application	1.00
		Filtering capacity	0.01	Filtering capacity	0.01	Too acid	0.99
						Filtering capacity	0.01
13A:							
Sardis	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Too acid	0.32	Too acid	0.91	Too acid	0.91
14C:							
Sawyer	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.32	Too acid	0.91	Too acid	0.91
						Too steep for surface application	0.32
15B:							
Smithton	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.50	Too acid	0.99	Too acid	0.99
		Slow water movement	0.41	Slow water movement	0.31	Slow water movement	0.31
		Runoff	0.40				

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater --Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16B:							
Stough	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Slow water movement	0.41	Slow water movement	0.31	Slow water movement	0.31
17A:							
Una	75	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.50	Too acid	0.99	Too acid	0.99
		Runoff	0.40				
18B:							
Urbo	84	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.50	Too acid	0.99	Too acid	0.99
		Runoff	0.40				
19C:							
Warnock	80	Somewhat limited		Very limited		Very limited	
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Filtering capacity	0.01	Filtering capacity	0.01	Too steep for surface application	0.08
						Filtering capacity	0.01
20:							
Water	100	Not rated		Not rated		Not rated	
21C:							
Wilcox	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	0.50	Too acid	0.99	Too acid	0.99
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
		Runoff	0.40			Too steep for surface application	0.08

Table 23.--Agricultural Disposal of Manure, Food-Processing Waste, Sewage Sludge, and Wastewater --Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21D:							
Wilcox	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.63	Too acid	0.99	Too steep for surface application	1.00
		Too acid	0.50	Slope	0.63	Too acid	0.99
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Too steep for sprinkler application	0.78
		Runoff	0.40			Depth to saturated zone	0.43

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1B:					
Adaton	78	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	0.94
				Too acid	0.67
2B:					
Amy	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	0.99
		Too acid	0.14	Slow water movement	0.96
3A:					
Bibb	95	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.14		
4:					
Dam	100	Not rated		Not rated	
4B:					
Gurdon	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.03		
5A:					
Guyton	85	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Too acid	1.00
		Too acid	0.03	Slow water movement	0.96
6B:					
Ouachita	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Too acid	0.91
				Slow water movement	0.26

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7C:					
Pikeville	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	0.99
		Slope	0.12	Too steep for surface application	0.32
				Low adsorption	0.16
				Filtering capacity	0.01
8:					
Pits	100	Not rated		Not rated	
9C:					
Rosalie	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Filtering capacity	1.00
		Slow water movement	1.00	Too acid	0.67
		Too acid	0.14	Depth to saturated zone	0.43
		Slope	0.12	Too steep for surface application	0.32
10C:					
Sacul	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Slow water movement	0.96
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.14	Depth to saturated zone	0.43
		Slope	0.12	Too steep for surface application	0.32
10D:					
Sacul	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Slow water movement	0.96
		Too acid	0.14	Too acid	0.91
				Depth to saturated zone	0.43

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10E:					
Sacul	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Slow water movement	0.96
		Too acid	0.14	Too acid	0.91
				Depth to saturated zone	0.43
11C:					
Sacul	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Slow water movement	0.96
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.14	Depth to saturated zone	0.43
		Slope	0.12	Too steep for surface application	0.32
11D:					
Sacul	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Slow water movement	0.96
		Too acid	0.14	Too acid	0.91
				Depth to saturated zone	0.43
11E:					
Sacul	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Slow water movement	0.96
		Too acid	0.14	Too acid	0.91
				Depth to saturated zone	0.43

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12C:					
Saffell	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	0.99
		Slope	0.12	Too steep for surface application	0.32
				Filtering capacity	0.01
12D:					
Saffell	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99
				Filtering capacity	0.01
12E:					
Saffell	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99
				Filtering capacity	0.01
13A:					
Sardis	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Slow water movement	1.00	Too acid	0.91
14C:					
Sawyer	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Slow water movement	0.94
		Slope	0.12	Too acid	0.91
				Too steep for surface application	0.32
15B:					
Smithton	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	0.99
				Slow water movement	0.21

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16B:					
Stough	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	1.00
		Too acid	0.21	Slow water movement	0.21
17A:					
Una	75	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00
				Too acid	0.99
18B:					
Urbo	84	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00
				Too acid	0.99
19C:					
Warnock	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Too acid	1.00
		Slow water movement	1.00	Depth to saturated zone	0.43
		Too acid	0.14	Too steep for surface application	0.08
				Filtering capacity	0.01
20:					
Water	100	Not rated		Not rated	
21C:					
Wilcox	85	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Too acid	0.99
		Depth to bedrock	1.00	Depth to saturated zone	0.43
		Too acid	0.14	Too steep for surface application	0.08
				Depth to bedrock	0.01

Table 24.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21D:					
Wilcox	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
		Depth to bedrock	1.00	Too acid	0.99
		Too acid	0.14	Depth to saturated zone	0.43

Table 25.--Engineering Properties

[Absence of an entry indicates that the data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1B:												
Adaton	0-3	Silt loam	ML, CL-ML, CL	A-4	0	0	100	95-100	90-100	80-95	15-30	NP-10
	3-25	Silt loam, silty clay loam	CH, CL	A-6, A-7	0	0	100	95-100	90-100	85-100	30-52	11-30
	25-80	Silt loam, silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	95-100	90-100	80-100	30-52	11-30
2B:												
Amy	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-100	80-100	15-30	NP-10
	4-6	Silt loam	ML, CL-ML, CL	A-4	0	0	100	95-100	85-100	75-100	15-30	NP-10
	6-21	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	80-100	70-100	15-30	NP-7
	21-55	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	95-100	85-100	80-100	25-35	8-14
	55-80	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	75-100	15-35	4-15
3A:												
Bibb	0-13	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	85-100	70-100	30-50	15-25	NP-7
	13-22	Fine sandy loam, sandy loam, loam, silt loam	SC-SM, SM	A-2, A-4	0	0	80-100	65-100	45-95	20-60	15-30	NP-7
	22-80	Stratified fine sandy loam to loam to silt loam, sandy loam, loam, silt loam, loamy fine sand	SC-SM, ML, SM, CL-ML	A-2, A-4	0	0	80-100	65-100	55-100	20-60	15-30	NP-7
4:												
Dam.												
4B:												
Gurdon	0-4	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	75-90	15-20	NP-5
	4-9	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	75-90	15-20	NP-5
	9-23	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-95	15-25	3-7
	23-55	Silt loam, loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	85-100	80-100	20-40	5-15
	55-80	Silt loam	CL	A-4, A-6	0	0	100	95-100	85-100	80-100	20-40	5-15

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
5A:												
Guyton----------	0-4	Silt loam	ML, CL-ML	A-4	0	0	100	100	90-100	80-100	15-27	NP-7
	4-11	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	15-27	NP-7
	11-30	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	22-40	6-18
	30-62	Silt loam, silty clay loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	15-40	NP-18
	62-80	Silt loam, silty clay loam, clay loam, sandy clay loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	60-80	15-40	NP-18
6B:												
Ouachita--------	0-10	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	15-30	2-10
	10-57	Silt loam, silty clay loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	25-40	5-15
	57-67	Silt loam, fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-95	45-60	25-40	5-15
	67-80	Very fine sandy loam, loam, stratified fine sandy loam to silt loam	SM	A-4, A-6	0	0	75-100	60-100	50-100	20-45	25-40	5-15
7C:												
Pikeville-------	0-3	Fine sandy loam	SM	A-4	0	0	90-100	80-100	65-95	30-50	15-30	NP-4
	3-19	Fine sandy loam, sandy loam, loam, gravelly loam, sandy clay loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	80-100	65-95	35-65	20-40	4-17
	19-37	Gravelly fine sandy loam, gravelly sandy loam, gravelly loam, gravelly sandy clay loam, gravelly clay loam	GM, SC, SM	A-1-b, A-2, A-4, A-6	0	0	70-100	60-100	45-95	20-60	20-48	2-18
	37-80	Gravelly fine sandy loam, extremely gravelly sandy loam, gravelly loam, gravelly sandy clay loam	SM, SC, GM	A-1-b, A-2	0	0	40-75	15-60	10-50	5-35	20-48	2-18
8:												
Pits.												

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
9C:												
Rosalie	0-6	Loamy fine sand	SM	A-2-4	0	0	95-100	90-100	80-100	25-35	15-25	NP-3
	6-23	Loamy fine sand	SM	A-2-4	0	0	95-100	90-100	80-100	25-35	15-25	NP-3
	23-29	Sandy clay loam, loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	70-90	35-50	18-36	5-18
	29-55	Loam, sandy clay loam	SC-SM	A-6, A-4	0	0	95-100	95-100	75-95	40-60	18-36	8-20
	55-80	Clay loam	CL	A-4	0	0	95-100	95-100	80-95	60-80	18-36	8-20
10C:												
Sacul	0-7	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	75-100	65-100	20-50	15-25	NP-7
	7-31	Silty clay, clay, clay loam	SC-SM, ML, CL-ML	A-4	0	0	85-100	75-100	70-100	60-100	15-30	NP-10
	31-62	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0	0	85-100	70-100	65-100	50-95	45-70	20-40
	62-80	Clay loam, loam	CL, SC	A-4, A-6, A-7	0	0	85-100	70-100	60-100	45-80	25-48	8-25
10D:												
Sacul	0-7	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	85-100	75-100	65-100	20-50	15-25	NP-7
	7-31	Silty clay, clay, clay loam	CL-ML, ML, SC-SM	A-4	0	0	85-100	75-100	70-100	60-100	15-30	NP-10
	31-62	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0	0	85-100	70-100	65-100	50-95	45-70	20-40
	62-80	Clay loam, loam	CL, SC	A-4, A-6, A-7	0	0	85-100	70-100	60-100	45-80	25-48	8-25
10E:												
Sacul	0-7	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	85-100	75-100	65-100	20-50	15-25	NP-7
	7-31	Silty clay, clay, clay loam	ML, SC-SM, CL-ML	A-4	0	0	85-100	75-100	70-100	60-100	15-30	NP-10
	31-62	Silty clay loam, silty clay, clay loam	CL, CH	A-7	0	0	85-100	70-100	65-100	50-95	45-70	20-40
	62-80	Clay loam, loam	SC, CL	A-4, A-6, A-7	0	0	85-100	70-100	60-100	45-80	25-48	8-25
11C:												
Sacul	0-7	Gravelly fine sandy loam	GC, GC-GM, SC, SC-SM	A-4, A-1, A-2	0	0-5	60-80	45-80	35-80	15-40	15-25	NP-10
	7-31	Gravelly fine sandy loam, gravelly very fine sandy loam, gravelly loam	SC-SM, SM, GM, GC-GM	A-1, A-2, A-4	0	0-5	60-80	45-80	40-80	20-55	15-30	NP-10
	31-62	Silty clay, clay, clay loam	CH, CL	A-7	0	0	100	85-100	80-100	65-100	43-66	21-39
	62-80	Silty clay loam, clay loam, sandy clay loam	CL	A-6, A-7	0	0	85-100	70-100	65-100	55-95	35-48	15-25

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
11D:												
Sacul	0-7	Gravelly fine sandy loam	GC-GM, GC, SC, SC-SM	A-4, A-1, A-2	0	0-5	60-80	45-80	35-80	15-40	15-25	NP-10
	7-31	Gravelly fine sandy loam, gravelly very fine sandy loam, gravelly loam	SM, GM, GC-GM, SC-SM	A-1, A-2, A-4	0	0-5	60-80	45-80	40-80	20-55	15-30	NP-10
	31-62	Silty clay, clay, clay loam	CH, CL	A-7	0	0	100	85-100	80-100	65-100	43-66	21-39
	62-80	Silty clay loam, clay loam, sandy clay loam	CL	A-6, A-7	0	0	85-100	70-100	65-100	55-95	35-48	15-25
11E:												
Sacul	0-7	Gravelly fine sandy loam	SC, GC-GM, SC-SM, GC	A-4, A-1, A-2	0	0-5	60-80	45-80	35-80	15-40	15-25	NP-10
	7-31	Gravelly fine sandy loam, gravelly very fine sandy loam, gravelly loam	SC-SM, GM, SM, GC-GM	A-1, A-2, A-4	0	0-5	60-80	45-80	40-80	20-55	15-30	NP-10
	31-62	Silty clay, clay, clay loam	CL, CH	A-7	0	0	100	85-100	80-100	65-100	43-66	21-39
	62-80	Silty clay loam, clay loam, sandy clay loam	CL	A-6, A-7	0	0	85-100	70-100	65-100	55-95	35-48	15-25
12C:												
Saffell	0-4	Gravelly fine sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	0-5	60-90	40-90	30-90	10-45	15-25	NP-5
	4-7	Gravelly fine sandy loam, gravelly sandy clay loam, gravelly loam	SC-SM, SC, GC-GM, GC	A-1, A-2, A-4, A-6	0	0-10	60-90	35-90	30-90	15-50	20-40	4-18
	7-14	Very gravelly fine sandy loam, very gravelly loam	GC-GM, GC	A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	14-45	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly sandy loam, very gravelly clay loam, extremely gravelly sandy loam	GP-GC, GC-GM, GC	A-2-4, A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	45-80	Extremely gravelly loamy sand, very gravelly sandy loam, gravelly loamy sand	GM, SC, SM, GC	A-1, A-2, A-3	0-5	0-14	50-85	5-85	5-75	1-30	15-35	NP-15

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
12D:												
Saffell---------	0-4	Gravelly fine sandy loam	GC-GM, SM, SC-SM, GM	A-1, A-2, A-4	0	0-5	60-90	40-90	30-90	10-45	15-25	NP-5
	4-7	Gravelly fine sandy loam, gravelly sandy clay loam, gravelly loam	GC-GM, SC, SC-SM, GC	A-1, A-2, A-4, A-6	0	0-10	60-90	35-90	30-90	15-50	20-40	4-18
	7-14	Very gravelly fine sandy loam, very gravelly loam	GC, GC-GM	A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	14-45	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly sandy loam, very gravelly clay loam, extremely gravelly sandy loam	GC, GP-GC, GC-GM	A-2-4, A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	45-80	Extremely gravelly loamy sand, very gravelly sandy loam, gravelly loamy sand	SM, SC, GM, GC	A-1, A-2, A-3	0-5	0-14	50-85	5-85	5-75	1-30	15-35	NP-15
12E:												
Saffell---------	0-4	Gravelly fine sandy loam	GC-GM, GM, SM, SC-SM	A-1, A-2, A-4	0	0-5	60-90	40-90	30-90	10-45	15-25	NP-5
	4-7	Gravelly fine sandy loam, gravelly sandy clay loam, gravelly loam	GC-GM, SC, SC-SM, GC	A-1, A-2, A-4, A-6	0	0-10	60-90	35-90	30-90	15-50	20-40	4-18
	7-14	Very gravelly fine sandy loam, very gravelly loam	GC-GM, GC	A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	14-45	Very gravelly sandy clay loam, very gravelly fine sandy loam, very gravelly sandy loam, very gravelly clay loam, extremely gravelly sandy loam	GC, GP-GC, GC-GM	A-2-4, A-1, A-2, A-4, A-6	0	0-10	45-65	25-65	15-60	10-45	20-40	4-15
	45-80	Extremely gravelly loamy sand, very gravelly sandy loam, gravelly loamy sand	GC, GM, SC, SM	A-1, A-2, A-3	0-5	0-14	50-85	5-85	5-75	1-30	15-35	NP-15

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
13A:												
Sardis	0-5	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-100	80-100	15-30	NP-10
	5-48	Silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-100	70-95	25-40	5-20
	48-80	Silty clay loam, loam, silt loam, sandy loam	CL-ML, CL, ML	A-4	0	0	100	95-100	70-100	65-90	15-30	NP-10
14C:												
Sawyer	0-4	Very fine sandy loam	ML, CL-ML, CL	A-4	0	0	100	95-100	85-100	45-70	25-30	3-10
	4-9	Fine sandy loam, loam, silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	95-100	80-100	35-60	25-40	3-20
	9-40	Silt loam, loam, silty clay loam, clay loam	CL	A-6	0	0	100	95-100	85-100	75-100	30-40	10-20
	40-63	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	85-100	75-100	45-60	20-35
	63-80	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	95-100	85-100	70-100	45-60	20-35
15B:												
Smithton	0-4	Fine sandy loam, very fine sandy loam	SM, SC-SM	A-2, A-4	0	0	95-100	90-100	75-100	30-50	15-25	NP-5
	4-14	Fine sandy loam, sandy loam, loam	SM, SC-SM, ML, CL-ML	A-4	0	0	95-100	90-100	65-100	45-75	20-25	NP-5
	14-43	Silty clay loam, sandy clay loam, loam	ML, SM, CL-ML, SC-SM	A-4	0	0	95-100	90-100	70-100	50-85	15-25	NP-7
	43-61	Clay loam, loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	55-100	40-80	15-35	NP-13
	61-80	Silty clay loam, clay loam, sandy clay loam	CL, CL-ML, SC-SM	A-4, A-6	0	0	95-100	90-100	77-100	55-100	15-35	NP-13
16B:												
Stough	0-3	Fine sandy loam	CL-ML, SM, SC-SM, ML	A-4	0	0	100	100	90-100	35-65	15-25	NP-7
	3-7	Loam, fine sandy loam, sandy loam	ML, CL-ML	A-4	0	0	100	100	90-100	45-65	15-25	NP-7
	7-30	Sandy loam, fine sandy loam, loam	SC, CL	A-4, A-6	0	0	100	100	90-100	40-65	25-40	4-15
	30-65	Sandy loam, sandy clay loam, loam	SC, CL	A-4, A-6	0	0	100	100	90-100	40-65	25-40	NP-15
	65-80	Sandy clay loam	CL	A-6	0	0	100	100	90-100	40-55	25-40	NP-15

Table 25.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
17A:												
Una	0-2	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	80-95	41-65	20-40
	2-32	Silty clay, silty clay loam	CL, CH	A-7	0	0	100	100	85-100	75-100	41-65	20-40
	32-80	Clay, silty clay loam, silty clay	CL, CH	A-7	0	0	100	100	70-95	55-85	41-65	20-40
18B:												
Urbo	0-17	Silty clay loam	CL	A-6	0	0	100	100	95-100	95-100	30-40	15-25
	17-32	Silty clay, clay loam, silty clay loam	CL, CH	A-7	0	0	100	100	95-100	80-100	44-62	20-36
	32-80	Silty clay, clay loam, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	80-100	44-62	20-36
19C:												
Warnock	0-4	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	90-100	75-100	60-100	25-50	15-25	NP-7
	4-10	Fine sandy loam, sandy loam, loamy fine sand	SM, SC-SM	A-2, A-4	0	0	90-100	75-100	60-95	25-50	15-25	NP-7
	10-47	Clay loam, sandy clay loam, loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	75-100	55-95	45-80	20-40	7-20
	47-80	Loam, sandy clay loam, clay loam, silty clay loam	SC, SC-SM, CL-ML, CL	A-4, A-6	0	0	90-100	75-100	65-100	45-85	15-40	4-20
20:												
Water.												
21C:												
Wilcox	0-9	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	90-100	80-95	30-51	15-30
	9-17	Clay, silty clay	CH	A-7	0	0	100	100	75-100	70-100	50-78	22-46
	17-58	Clay	CH	A-7	0	0	100	100	80-100	70-100	60-80	39-55
	58-80				0	0	---	---	---	---	---	---
21D:												
Wilcox	0-9	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	90-100	80-95	30-51	15-30
	9-17	Clay, silty clay	CH	A-7	0	0	100	100	75-100	70-100	50-78	22-46
	17-58	Clay	CH	A-7	0	0	100	100	80-100	70-100	60-80	39-55
	58-80				0	0	---	---	---	---	---	---

Table 26.--Physical Soil Properties

[Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*µm/sec*	*In/in*	*Pct*	*Pct*					
1B:														
Adaton	0-3	5-15	65-80	10-16	1.50-1.55	4.00-14.00	0.20-0.22	0.0-2.9	0.5-3.0	.43	.43	5	5	56
	3-25	0-10	55-75	20-35	1.40-1.45	0.42-1.40	0.18-0.22	3.0-5.9	0.0-1.0	.32	.32			
	25-80	0-10	40-70	20-42	1.40-1.45	0.42-1.40	0.18-0.22	3.0-5.9	0.0-1.0	.32	.32			
2B:														
Amy	0-4	5-20	60-75	5-25	1.35-1.55	4.23-14.11	0.13-0.20	0.0-2.9	0.5-3.0	.43	.43	5	8	0
	4-6	5-20	60-75	5-25	1.35-1.55	4.23-14.11	0.13-0.20	0.0-2.9	0.5-1.5	.43	.43			
	6-21	10-55	35-75	5-20	1.35-1.55	4.23-14.11	0.13-0.20	0.0-2.9	0.5-1.0	.43	.43			
	21-55	0-15	55-75	18-32	1.35-1.55	0.42-1.41	0.13-0.20	0.0-2.9	0.1-1.0	.43	.43			
	55-80	0-35	45-70	12-35	1.35-1.55	1.41-4.23	0.13-0.20	0.0-2.9	0.0-0.5	.43	.43			
3A:														
Bibb	0-13	60-75	18-30	2-18	1.50-1.70	4.00-14.00	0.12-0.18	0.0-2.9	1.0-3.0	.20	.24	5	3	86
	13-22	30-75	18-60	2-18	1.45-1.75	4.00-14.00	0.10-0.20	0.0-2.9	0.1-1.0	.24	.28			
	22-80	30-75	15-60	2-18	1.45-1.75	4.00-14.00	0.10-0.20	0.0-2.9	0.1-1.0	.24	.28			
4:														
Dam.														
4B:														
Gurdon	0-4	15-25	55-70	5-15	1.25-1.55	4.23-14.11	0.13-0.20	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-9	15-60	35-70	5-15	1.25-1.55	4.23-14.11	0.13-0.20	0.0-2.9	0.5-1.0	.43	.43			
	9-23	10-60	40-75	10-18	1.25-1.55	4.23-14.11	0.13-0.20	0.0-2.9	0.0-0.5	.43	.43			
	23-55	5-45	40-70	15-35	1.25-1.60	4.23-14.11	0.13-0.20	0.0-2.9	0.0-0.5	.43	.43			
	55-80	5-20	55-70	15-35	1.25-1.60	4.23-14.11	0.13-0.20	0.0-2.9	0.0-0.5	.43	.43			
5A:														
Guyton	0-4	5-20	55-75	7-25	1.35-1.65	4.23-14.11	0.20-0.23	0.0-2.9	0.5-4.0	.43	.43	5	5	56
	4-11	5-20	55-75	7-25	1.35-1.65	4.23-14.11	0.20-0.23	0.0-2.9	0.5-1.0	.43	.43			
	11-30	5-35	35-75	20-35	1.35-1.70	0.42-1.41	0.15-0.22	0.0-2.9	0.5-1.0	.37	.37			
	30-62	5-20	50-70	20-35	1.35-1.70	0.42-1.41	0.15-0.22	0.0-2.9	0.1-1.0	.37	.37			
	62-80	15-60	10-60	20-35	1.35-1.70	0.42-1.41	0.15-0.22	0.0-2.9	0.1-1.0	.37	.37			
6B:														
Ouachita	0-10	5-20	50-75	8-25	1.35-1.60	4.00-14.00	0.15-0.22	0.0-2.9	1.0-2.0	.37	.37	5	5	56
	10-57	5-35	40-70	18-35	1.35-1.60	1.40-4.00	0.15-0.22	0.0-2.9	0.0-1.0	.32	.32			
	57-67	35-70	25-60	7-20	1.35-1.60	1.40-4.00	0.15-0.22	0.0-2.9	0.0-1.0	.32	.32			
	67-80	35-75	15-60	7-20	1.35-1.60	1.40-4.00	0.15-0.22	0.0-2.9	0.0-1.0	.32	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*µm/sec*	*In/in*	*Pct*	*Pct*					
7C:														
Pikeville	0-3	60-70	15-30	6-15	1.40-1.60	4.23-14.11	0.10-0.15	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	3-19	40-60	15-40	7-30	1.65-1.80	4.23-14.11	0.10-0.15	0.0-2.9	0.5-1.0	.28	.32			
	19-37	40-65	15-35	7-30	1.65-1.80	14.11-42.34	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	37-80	45-65	20-45	7-20	1.65-1.80	14.11-42.34	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
8:														
Pits.														
9C:														
Rosalie	0-6	75-90	5-15	5-12	1.45-1.60	42.34-141.14	0.05-0.10	0.0-2.9	0.5-2.0	.17	.17	5	2	134
	6-23	75-90	5-20	5-12	1.45-1.60	42.30-141.10	0.05-0.10	0.0-2.9	0.5-1.0	.17	.17			
	23-29	45-70	15-40	12-25	1.45-1.60	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	29-55	40-65	15-40	20-35	1.50-1.60	4.23-14.11	0.14-0.17	0.0-2.9	0.0-0.5	.24	.24			
	55-80	25-40	25-45	20-35	1.50-1.60	4.23-14.11	0.14-0.17	0.0-2.9	0.0-0.5	.24	.24			
10C:														
Sacul	0-7	60-75	10-30	5-20	1.30-1.50	4.23-14.11	0.09-0.12	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	7-31	5-30	30-50	35-60	1.40-1.60	4.23-14.11	0.07-0.17	0.0-2.9	0.5-1.0	.28	.28			
	31-62	10-30	30-50	25-50	1.25-1.40	0.42-1.41	0.15-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	25-40	30-45	15-40	1.30-1.45	1.41-4.23	0.14-0.18	0.0-2.9	0.0-0.5	.28	.32			
10D:														
Sacul	0-7	60-75	10-30	5-20	1.30-1.50	4.23-14.11	0.09-0.12	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	7-31	5-30	30-50	35-60	1.40-1.60	4.23-14.11	0.07-0.17	0.0-2.9	0.5-1.0	.28	.28			
	31-62	10-30	30-50	25-50	1.25-1.40	0.42-1.41	0.15-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	25-40	30-45	15-40	1.30-1.45	1.41-4.23	0.14-0.18	0.0-2.9	0.0-0.5	.28	.32			
10E:														
Sacul	0-7	60-75	10-30	5-20	1.30-1.50	4.23-14.11	0.09-0.12	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	7-31	5-30	30-50	35-60	1.40-1.60	4.23-14.11	0.07-0.17	0.0-2.9	0.5-1.0	.28	.28			
	31-62	10-30	30-50	25-50	1.25-1.40	0.42-1.41	0.15-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	25-40	30-45	15-40	1.30-1.45	1.41-4.23	0.14-0.18	0.0-2.9	0.0-0.5	.28	.32			
11C:														
Sacul	0-7	65-75	10-40	5-20	1.40-1.50	4.23-14.11	0.08-0.12	0.0-2.9	1.0-3.0	.24	.28	5	3	86
	7-31	45-75	10-40	5-25	1.40-1.50	4.23-14.11	0.08-0.17	0.0-2.9	0.5-1.0	.28	.32			
	31-62	5-25	30-50	35-60	1.25-1.40	0.42-1.41	0.16-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	10-55	20-55	25-40	1.30-1.45	1.41-4.23	0.16-0.18	3.0-5.9	0.0-0.5	.28	.32			
11D:														
Sacul	0-7	65-75	10-40	5-20	1.40-1.50	4.23-14.11	0.08-0.12	0.0-2.9	1.0-3.0	.24	.28	5	3	86
	7-31	45-75	10-40	5-25	1.40-1.50	4.23-14.11	0.08-0.17	0.0-2.9	0.5-1.0	.28	.32			
	31-62	5-25	30-50	35-60	1.25-1.40	0.42-1.41	0.16-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	10-55	20-55	25-40	1.30-1.45	1.41-4.23	0.16-0.18	3.0-5.9	0.0-0.5	.28	.32			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*µm/sec*	*In/in*	*Pct*	*Pct*					
11E:														
Sacul	0-7	65-75	10-40	5-20	1.40-1.50	4.23-14.11	0.08-0.12	0.0-2.9	1.0-3.0	.24	.28	5	3	86
	7-31	45-75	10-40	5-25	1.40-1.50	4.23-14.11	0.08-0.17	0.0-2.9	0.5-1.0	.28	.32			
	31-62	5-25	30-50	35-60	1.25-1.40	0.42-1.41	0.16-0.18	6.0-8.9	0.0-0.5	.32	.32			
	62-80	10-55	20-55	25-40	1.30-1.45	1.41-4.23	0.16-0.18	3.0-5.9	0.0-0.5	.28	.32			
12C:														
Saffell	0-4	65-85	10-30	5-20	1.35-1.60	14.11-42.34	0.07-0.17	0.0-2.9	1.0-2.0	.20	.24	5	5	56
	4-7	40-70	15-35	7-20	1.35-1.60	4.23-14.11	0.06-0.15	0.0-2.9	0.5-1.0	.28	.32			
	7-14	40-60	20-45	7-20	1.35-1.60	4.23-14.11	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	14-45	40-60	10-30	12-35	1.35-1.60	4.00-14.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	45-80	70-85	5-20	2-20	1.40-1.65	4.23-42.34	0.04-0.11	0.0-2.9	0.0-0.5	.15	.20			
12D:														
Saffell	0-4	65-85	10-30	5-20	1.35-1.60	14.11-42.34	0.07-0.17	0.0-2.9	1.0-2.0	.20	.24	5	5	56
	4-7	40-70	15-35	7-20	1.35-1.60	4.23-14.11	0.06-0.15	0.0-2.9	0.5-1.0	.28	.32			
	7-14	40-60	20-45	7-20	1.35-1.60	4.23-14.11	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	14-45	40-60	10-30	12-35	1.35-1.60	4.00-14.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	45-80	70-85	5-20	2-20	1.40-1.65	4.23-42.34	0.04-0.11	0.0-2.9	0.0-0.5	.15	.20			
12E:														
Saffell	0-4	65-85	10-30	5-20	1.35-1.60	14.11-42.34	0.07-0.17	0.0-2.9	1.0-2.0	.20	.24	5	5	56
	4-7	40-70	15-35	7-20	1.35-1.60	4.23-14.11	0.06-0.15	0.0-2.9	0.5-1.0	.28	.32			
	7-14	40-60	20-45	7-20	1.35-1.60	4.23-14.11	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	14-45	40-60	10-30	12-35	1.35-1.60	4.00-14.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
	45-80	70-85	5-20	2-20	1.40-1.65	4.23-42.34	0.04-0.11	0.0-2.9	0.0-0.5	.15	.20			
13A:														
Sardis	0-5	5-20	50-75	10-25	1.25-1.60	4.23-14.11	0.15-0.24	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	5-48	5-35	35-60	14-35	1.25-1.60	4.23-14.11	0.15-0.24	0.0-2.9	0.5-1.0	.37	.37			
	48-80	5-60	30-65	8-30	1.25-1.60	4.23-14.11	0.10-0.24	0.0-2.9	0.0-0.5	.37	.37			
14C:														
Sawyer	0-4	55-70	15-35	12-25	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	4-9	30-70	10-55	12-25	1.35-1.60	4.00-14.00	0.15-0.20	0.0-2.9	0.5-1.0	.37	.37			
	9-40	0-35	40-70	20-40	1.35-1.55	1.40-4.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.32			
	40-63	0-15	30-65	30-60	1.15-1.50	0.42-1.40	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	63-80	5-20	25-55	30-60	1.15-1.50	0.42-1.40	0.14-0.20	6.0-8.9	0.0-0.5	.32	.32			
15B:														
Smithton	0-4	50-70	15-35	5-18	1.40-1.55	4.23-14.11	0.10-0.15	0.0-2.9	1.0-3.0	.28	.28	5	3	86
	4-14	35-60	20-45	5-27	1.40-1.55	4.23-14.11	0.10-0.20	0.0-2.9	0.5-1.0	.32	.32			
	14-43	15-55	20-55	8-35	1.40-1.55	1.41-4.23	0.11-0.20	0.0-2.9	0.1-1.0	.32	.32			
	43-61	30-55	20-45	8-40	1.35-1.55	1.41-4.23	0.11-0.20	0.0-2.9	0.1-1.0	.37	.37			
	61-80	10-50	20-55	8-40	1.35-1.55	1.41-4.23	0.11-0.20	0.0-2.9	0.1-1.0	.37	.37			

Table 26.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*µm/sec*	*In/in*	*Pct*	*Pct*					
16B:														
Stough	0-3	55-75	17-40	5-15	1.40-1.55	4.23-14.11	0.12-0.18	0.0-2.9	0.5-3.0	.28	.28	5	3	86
	3-7	40-70	17-40	5-18	1.45-1.65	1.41-4.23	0.07-0.11	0.0-2.9	0.5-1.0	.32	.32			
	7-30	35-70	16-40	5-18	1.55-1.70	1.41-4.23	0.07-0.11	0.0-2.9	0.0-0.5	.32	.32			
	30-65	35-65	13-40	10-30	1.55-1.70	1.41-4.23	0.07-0.11	0.0-2.9	0.0-0.5	.32	.32			
	65-80	45-65	2-20	10-34	1.55-1.65	1.41-4.23	0.07-0.11	0.0-2.9	0.0-0.5	.32	.32			
17A:														
Una	0-2	10-20	40-60	28-40	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	1.0-3.0	.32	.32	5	7	38
	2-32	10-20	30-65	28-55	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	0.1-1.0	.28	.28			
	32-80	10-30	20-65	28-55	1.40-1.60	0.01-0.42	0.15-0.20	6.0-8.9	0.1-1.0	.28	.28			
18B:														
Urbo	0-17	10-20	45-60	27-35	1.40-1.50	0.42-1.40	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37	5	7	38
	17-32	10-35	30-65	27-55	1.45-1.55	0.01-0.42	0.18-0.20	6.0-8.9	0.0-1.0	.28	.28			
	32-80	5-35	35-55	35-55	1.45-1.55	0.01-0.42	0.18-0.20	6.0-8.9	0.0-1.0	.28	.28			
19C:														
Warnock	0-4	60-75	15-30	2-18	1.30-1.60	14.11-42.34	0.08-0.12	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	4-10	60-80	10-25	1-18	1.30-1.60	14.11-42.34	0.06-0.12	0.0-2.9	0.5-1.0	.24	.28			
	10-47	25-60	20-45	15-35	1.40-1.65	4.23-14.11	0.12-0.17	0.0-2.9	0.0-0.5	.24	.28			
	47-80	15-60	20-50	12-40	1.40-1.65	4.23-14.11	0.10-0.17	0.0-2.9	0.0-0.5	.24	.28			
20:														
Water.														
21C:														
Wilcox	0-9	10-20	45-65	28-40	1.40-1.45	0.42-1.40	0.15-0.21	6.0-8.9	0.5-2.0	.37	.37	4	5	56
	9-17	5-20	15-50	40-80	1.40-1.50	0.01-0.42	0.18-0.20	6.0-8.9	0.2-1.0	.32	.32			
	17-58	5-25	15-35	40-70	1.40-1.55	0.01-0.42	0.15-0.18	6.0-8.9	0.0-0.5	.28	.28			
	58-80	---	---	---	---	0.01-0.42	---	---	0.0-0.5	---	---			
21D:														
Wilcox	0-9	10-20	45-65	28-40	1.40-1.45	0.42-1.40	0.15-0.21	6.0-8.9	0.5-2.0	.37	.37	4	5	56
	9-17	5-20	15-50	40-80	1.40-1.50	0.01-0.42	0.18-0.20	6.0-8.9	0.2-1.0	.32	.32			
	17-58	5-25	15-35	40-70	1.40-1.55	0.01-0.42	0.15-0.18	6.0-8.9	0.0-0.5	.28	.28			
	58-80	---	---	---	---	0.01-0.42	---	---	0.0-0.5	---	---			

Table 27.--Chemical Soil Properties

[Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	*meq/100 g*	*meq/100 g*	*pH*
1B:				
Adaton	0-3	5.4-8.7	---	5.1-6.0
	3-25	---	5.9-18	4.5-5.5
	25-80	---	5.9-22	4.5-5.5
2B:				
Amy	0-4	---	10-20	3.6-5.5
	4-6	---	10-20	3.6-5.5
	6-21	---	5.0-15	3.6-5.5
	21-55	---	10-20	3.6-5.5
	55-80	---	10-20	3.6-5.5
3A:				
Bibb	0-13	---	4.0-7.0	3.6-5.5
	13-22	---	4.0-10	3.6-5.5
	22-80	---	4.0-10	3.6-5.5
4:				
Dam.				
4B:				
Gurdon	0-4	---	5.0-15	3.6-6.0
	4-9	---	5.0-15	3.6-6.0
	9-23	---	5.0-20	3.6-6.0
	23-55	---	10-30	3.6-6.0
	55-80	---	10-30	3.6-6.0
5A:				
Guyton	0-4	---	4.0-10	3.6-6.0
	4-11	---	4.0-10	3.6-6.0
	11-30	---	10-30	3.6-6.0
	30-62	10-30	---	3.6-8.4
	62-80	10-30	---	3.6-8.4
6B:				
Ouachita	0-10	---	5.0-15	4.5-6.0
	10-57	---	10-20	4.5-5.5
	57-67	---	10-20	4.5-5.5
	67-80	---	10-20	4.5-5.5
7C:				
Pikeville	0-3	---	0.8-3.0	4.5-5.5
	3-19	---	1.0-4.0	4.5-5.5
	19-37	---	1.0-4.0	4.5-5.5
	37-80	---	1.0-3.0	4.5-5.5
8:				
Pits.				
9C:				
Rosalie	0-6	3.0-7.0	---	5.1-6.0
	6-23	---	---	3.6-5.5
	23-29	---	4.0-12	3.6-5.5
	29-55	---	6.0-18	3.6-5.5
	55-80	---	6.0-18	3.6-5.5

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	*meq/100 g*	*meq/100 g*	*pH*
10C:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	15-40	3.6-5.5
10D:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	15-40	3.6-5.5
10E:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	15-40	3.6-5.5
11C:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	20-40	3.6-5.5
11D:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	20-40	3.6-5.5
11E:				
Sacul	0-7	---	5.0-15	4.5-6.0
	7-31	---	5.0-15	4.5-6.0
	31-62	---	20-45	3.6-5.5
	62-80	---	20-40	3.6-5.5
12C:				
Saffell	0-4	---	5.0-15	4.5-5.5
	4-7	---	5.0-15	4.5-5.5
	7-14	---	10-20	4.5-5.5
	14-45	---	10-20	4.5-5.5
	45-80	---	5.0-15	4.5-5.5
12D:				
Saffell	0-4	---	5.0-15	4.5-5.5
	4-7	---	5.0-15	4.5-5.5
	7-14	---	10-20	4.5-5.5
	14-45	---	10-20	4.5-5.5
	45-80	---	5.0-15	4.5-5.5
12E:				
Saffell	0-4	---	5.0-15	4.5-5.5
	4-7	---	5.0-15	4.5-5.5
	7-14	---	10-20	4.5-5.5
	14-45	---	10-20	4.5-5.5
	45-80	---	5.0-15	4.5-5.5

Table 27.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	*meq/100 g*	*meq/100 g*	*pH*
13A:				
Sardis	0-5	---	10-25	4.5-6.0
	5-48	---	5.0-30	4.5-6.0
	48-80	---	5.0-15	4.5-6.0
14C:				
Sawyer	0-4	---	5.0-15	4.5-6.0
	4-9	---	5.0-15	4.5-6.0
	9-40	---	10-20	4.5-5.5
	40-63	---	20-35	4.5-5.5
	63-80	---	20-35	4.5-5.5
15B:				
Smithton	0-4	---	2.0-10	4.5-5.5
	4-14	---	2.0-10	4.5-5.5
	14-43	---	2.0-20	4.5-5.5
	43-61	---	5.0-25	4.5-5.5
	61-80	---	5.0-25	4.5-5.5
16B:				
Stough	0-3	---	0.8-2.9	4.5-5.5
	3-7	---	1.4-3.5	4.5-5.5
	7-30	---	2.0-10	4.5-5.5
	30-65	---	5.0-10	4.5-5.5
	65-80	---	5.0-15	4.5-5.5
17A:				
Una	0-2	---	7.7-13	4.5-5.5
	2-32	---	8.8-25	4.5-5.5
	32-80	---	8.8-25	4.5-5.5
18B:				
Urbo	0-17	---	7.0-11	4.5-5.5
	17-32	---	8.0-30	4.5-5.5
	32-80	---	11-30	4.5-5.5
19C:				
Warnock	0-4	---	5.0-15	3.6-5.5
	4-10	---	1.0-15	3.6-5.5
	10-47	---	10-25	3.6-5.5
	47-80	---	10-25	3.6-5.5
20:				
Water.				
21C:				
Wilcox	0-9	---	14-24	4.5-5.5
	9-17	---	16-47	3.6-5.5
	17-58	---	16-42	3.6-5.5
	58-80	---	---	3.6-5.5
21D:				
Wilcox	0-9	---	14-24	4.5-5.5
	9-17	---	16-47	3.6-5.5
	17-58	---	16-42	3.6-5.5
	58-80	---	---	3.6-5.5

Table 28.--Soil Features

[See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
1B:					
Adaton	---	---	---	High	High
2B:					
Amy	---	---	---	High	Moderate
3A:					
Bibb	---	---	---	High	Moderate
4:					
Dam.					
4B:					
Gurdon	---	---	---	High	High
5A:					
Guyton	---	---	---	High	High
6B:					
Ouachita	---	---	---	Moderate	Moderate
7C:					
Pikeville	---	---	---	Low	Moderate
8:					
Pits.					
9C:					
Rosalie	---	---	---	Low	High
10C:					
Sacul	---	---	---	High	High
10D:					
Sacul	---	---	---	High	High
10E:					
Sacul	---	---	---	High	High
11C:					
Sacul	---	---	---	High	High
11D:					
Sacul	---	---	---	High	High
11E:					
Sacul	---	---	---	High	High
12C:					
Saffell	---	---	---	Low	Moderate
12D:					
Saffell	---	---	---	Low	Moderate
12E:					
Saffell	---	---	---	Low	Moderate

Table 28.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In			
13A:					
Sardis	---	---	---	High	Moderate
14C:					
Sawyer	---	---	---	High	High
15B:					
Smithton	---	---	---	High	High
16B:					
Stough	---	---	---	Moderate	High
17A:					
Una	---	---	---	High	High
18B:					
Urbo	---	---	---	High	High
19C:					
Warnock	---	---	---	Moderate	High
20:					
Water.					
21C:					
Wilcox	Paralithic bedrock	40-60	Weakly cemented	High	High
21D:					
Wilcox	Paralithic bedrock	40-60	Weakly cemented	High	High

Table 29.--Water Features

[See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
1B:										
Adaton	D	Medium								
			Jan-Apr	0.0-0.5	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	0.0-0.5	>6.0	---	---	None	---	None
2B:										
Amy	D	Medium								
			Jan-Apr	0.0-1.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	---	None
3A:										
Bibb	D	Negligible								
			Jan-May	0.5-1.0	>6.0	---	---	None	Brief	Frequent
			Jun-Nov	---	---	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	Brief	Frequent
4:										
Dam	---	---								
			Jan-Dec	---	---	---	---	None	---	None
4B:										
Gurdon	C	Low								
			Jan-Apr	1.0-2.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.0-2.0	>6.0	---	---	None	---	None
5A:										
Guyton	D	Medium								
			Jan-Apr	0.0-1.5	>6.0	---	---	None	Long	Frequent
			May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
			Jun-Nov	---	---	---	---	None	---	None
			December	0.0-1.5	>6.0	---	---	None	Long	Frequent
6B:										
Ouachita	C	Negligible								
			Jan-May	---	---	---	---	None	Long	Frequent
			Jun-Nov	---	---	---	---	None	---	None
			December	---	---	---	---	None	Long	Frequent

Table 29.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
7C:										
Pikeville	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
8:										
Pits	---	---								
			Jan-Dec	---	---	---	---	None	---	---
9C:										
Rosalie	B	Low								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
10C:										
Sacul	C	Medium								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
10D:										
Sacul	C	High								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
10E:										
Sacul	C	High								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
11C:										
Sacul	C	Medium								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
11D:										
Sacul	C	High								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None

Table 29.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
11E:										
Sacul	C	High								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
12C:										
Saffell	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
12D:										
Saffell	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
12E:										
Saffell	B	High								
			Jan-Dec	---	---	---	---	None	---	None
13A:										
Sardis	C	Low								
			Jan-May	1.5-3.0	>6.0	---	---	None	Long	Frequent
			Jun-Nov	---	---	---	---	None	---	None
			December	1.5-3.0	>6.0	---	---	None	Long	Frequent
14C:										
Sawyer	C	Medium								
			Jan-Apr	1.5-2.5	2.0-3.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None
15B:										
Smithton	D	High								
			Jan-May	0.0-1.0	>6.0	---	---	None	---	None
			Jun-Nov	---	---	---	---	None	---	None
			December	0.0-1.0	>6.0	---	---	None	---	None
16B:										
Stough	C	Medium								
			Jan-Apr	1.0-1.5	1.5-2.5	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	1.0-1.5	1.5-2.5	---	---	None	---	None

Table 29.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
17A:										
Una	D	High								
			Jan-May	0.5-1.0	>6.0	---	---	None	Long	Frequent
			Jun-Oct	---	---	---	---	None	---	None
			November	0.5-1.0	>6.0	---	---	None	---	None
			December	0.5-1.0	>6.0	---	---	None	Long	Frequent
18B:										
Urbo	D	High								
			Jan-May	1.0-2.0	>6.0	---	---	None	Long	Frequent
			Jun-Nov	---	---	---	---	None	---	None
			December	1.0-2.0	>6.0	---	---	None	Long	Frequent
19C:										
Warnock	B	Low								
			Jan-Apr	2.0-4.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	>6.0	---	---	None	---	None
20:										
Water.										
21C:										
Wilcox	D	Medium								
			Jan-Apr	2.0-4.0	5.0-5.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	5.0-5.0	---	---	None	---	None
21D:										
Wilcox	D	High								
			Jan-Apr	2.0-4.0	5.0-5.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			December	2.0-4.0	5.0-5.0	---	---	None	---	None

Table 30a.--Physical and Chemical Analyses of Selected Soils (Part 1)

*** Primary Characterization Data ***

Pedon ID: S04AR-053-007 (Grant, Arkansas) Print Date: Jan 14 2008 2:26PM

Sampled as : Stough; Coarse-loamy, siliceous, semiactive, thermic Fragiaquic Paleudult
Revised to :

SSL - Project C2005USAR043 Grant Co.
- Site ID S04AR-053-007 Lat: 34° 15' 15.50" north Long: 92° 21' 15.00" west NAD83
- Pedon No. 05N0218
- General Methods 1B1A, 2A1, 2B

United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Soil Survey Laboratory
Lincoln, Nebraska 68508-3866

Layer	Horizon	Orig Hzn	Depth (cm)	Field Label 1	Field Label 2	Field Label 3	Field Texture	Lab Texture
05N01292	A		0-8	S04AR-053-007-1				FSL
05N01293	E		8-18	S04AR-053-007-2				FSL
05N01294	Bt1		18-43	S04AR-053-007-3				L
05N01295	Bt2		43-76	S04AR-053-007-4				L
05N01296	Btgx1		76-117	S04AR-053-007-5				L
05N01297	Btgx2		117-165	S04AR-053-007-6				L
05N01298	Btg		165-203	S04AR-053-007-7				SCL

Pedon Calculations

Calculation Name	Result	Units of Measure
LE, Whole Soil, Summed to 1m	2	cm/m

PSDA & Rock Fragments

				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-
				(------Total------)			(---Clay---)		(---Silt---)		(------------Sand------------)						(----Rock Fragments: mm---)			
				Clay	Silt	Sand	Fine	CO_3	Fine	Coarse	VF	F	M	C	VC		(--Weight--)			>2 mm
	Depth			<	.002	.05	<	<	.002	.02	.05	.10	.25	.5	1	2	5	20	.1-	wt %
Layer	(cm)	Horz	Prep	.002	-.05	-2	.0002	.002	-.02	-.05	-.10	-.25	-.50	-1	-2	-5	-20	-75	75	whole
				(----------% of <2mm Mineral Soil----------)													(--------% of <75mm-------)			soil
				3A1a1a			3A1a1a		3A1a1a		3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a					
05N01292	0-8	A	S	5.2	36.0	58.8	3.4		18.9	17.1	9.3	47.6	1.6	0.3	tr	1	--	--	50	1
05N01293	8-18	E	S	6.2	35.8	58.0	5.2		18.7	17.1	9.2	47.3	0.9	0.1	0.5	tr	tr	--	49	1
05N01294	18-43	Bt1	S	13.7	35.5	50.8	10.8		18.9	16.6	8.8	40.9	0.9	0.1	0.1	tr	tr	--	42	1
05N01295	43-76	Bt2	S	18.4	35.0	46.6	14.1		20.0	15.0	5.8	39.6	0.9	0.2	0.1	tr	tr	--	41	1
05N01296	76-117	Btgx1	S	23.1	35.3	41.6	15.8		21.2	14.1	5.6	34.6	0.9	0.3	0.2	1	tr	--	37	1
05N01297	117-165	Btgx2	S	25.9	33.6	40.5	18.0		20.6	13.0	6.6	33.1	0.7	0.1	--	1	--	--	35	1
05N01298	165-203	Btg	S	30.8	7.1	62.1	21.8		5.3	1.8	8.6	53.2	0.3	tr	tr	1	--	--	54	1

Bulk Density & Moisture

				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-
				(Bulk Density)		Cole	(----------Water Content----------)						WRD	Aggst		
				33	Oven	Whole	6	10	33	1500	1500 kPa	Ratio	Whole	Stabl	(---Ratio/Clay--)	
Layer	Depth (cm)	Horz	Prep	kPa (---g cm-3---)	Dry	Soil	kPa	kPa	kPa	kPa	Moist	AD/OD	Soil	2-0.5mm	CEC7	1500 kPa
							(----------% of < 2mm----------)						$cm^3\ cm^{-3}$	%		
				DbWR1	DbWR1				DbWR1	3C2a1a		3D1				
05N01292	0-8	A	S	1.46	1.48	0.005			11.8	4.8		1.006	0.10		1.23	0.92
05N01293	8-18	E	S	1.58	1.60	0.004			12.5	2.8		1.004	0.15		0.52	0.45
05N01294	18-43	Bt1	S	1.58	1.64	0.012			16.5	5.3		1.007	0.18		0.42	0.39
05N01295	43-76	Bt2	S	1.58	1.66	0.017			18.0	7.5		1.009	0.17		0.42	0.41
05N01296	76-117	Btgx1	S	1.57	1.68	0.023			19.4	9.7		1.012	0.15		0.42	0.42
05N01297	117-165	Btgx2	S	1.57	1.68	0.023			19.5	11.3		1.013	0.13		0.44	0.44
05N01298	165-203	Btg	S	1.46	1.64	0.039			20.6	13.1		1.017	0.11		0.47	0.43

Table 30a.--Physical and Chemical Analyses of Selected Soils (Part 1)--Continued

Carbon & Extractions

Layer	Depth (cm)	Horz	Prep	-1- Total C (% of < 2 mm) 4H2a	-2- Total N (% of < 2 mm) 4H2a	-3- Total S (% of < 2 mm) 4H2a	-4- Org C (% of < 2 mm)	-5- C/N Ratio	-6- Dith-Cit Ext Fe (% of < 2 mm)	-7- Dith-Cit Ext Al (% of < 2 mm)	-8- Dith-Cit Ext Mn (% of < 2 mm)	-9- Ammonium Oxalate Extraction Al+½Fe (% of < 2 mm)	-10- Ammonium Oxalate Extraction ODOE (% of < 2 mm)	-11- Ammonium Oxalate Extraction Fe (% of < 2 mm)	-12- Ammonium Oxalate Extraction Al (% of < 2 mm)	-13- Ammonium Oxalate Extraction Si (% of < 2 mm)	-14- Ammonium Oxalate Extraction Mn (mg kg-1)	-15- Na Pyro-Phosphate C (% of < 2 mm)	-16- Na Pyro-Phosphate Fe (% of < 2 mm)	-17- Na Pyro-Phosphate Al (% of < 2 mm)	-18- Na Pyro-Phosphate Mn (% of < 2 mm)
05N01292	0-8	A	S	2.54	0.093	--		27													
05N01293	8-18	E	S	0.49	0.012	--		41													
05N01294	18-43	Bt1	S	0.22	0.002	--		111													
05N01295	43-76	Bt2	S	0.19	0.051	--		4													
05N01296	76-117	Btgx1	S	0.10	0.016	--		6													
05N01297	117-165	Btgx2	S	0.10	0.032	--		3													
05N01298	165-203	Btg	S	0.10	0.038	--		3													

CEC & Bases

Layer	Depth (cm)	Horz	Prep	-1- NH4OAC Ca (cmol(+) kg-1) 4B1a1a	-2- NH4OAC Mg (cmol(+) kg-1) 4B1a1a	-3- NH4OAC Na (cmol(+) kg-1) 4B1a1a	-4- NH4OAC K (cmol(+) kg-1) 4B1a1a	-5- Sum Bases (cmol(+) kg-1)	-6- Acid-ity (cmol(+) kg-1) 4B2b1a1	-7- Extr Al (cmol(+) kg-1) 4B3a1a	-8- KCl Mn (mg kg-1) 4B3a1a	-9- CEC8 Sum Cats (cmol(+) kg-1)	-10- CEC7 NH_4 OAC (cmol(+) kg-1) 4B1a1a	-11- ECEC Sum Bases +Al (cmol(+) kg-1)	-12- Al Sat (%)	-13- Base Sat (%) Sum	-14- Base Sat (%) NH_4OAC
05N01292	0-8	A	S	1.2	0.3	--	0.1	1.6	9.9	1.2	2.7	11.5	6.4	2.8	43	14	25
05N01293	8-18	E	S	0.4	0.2	--	tr	0.6	4.2	1.3	0.5	4.8	3.2	1.9	68	13	19
05N01294	18-43	Bt1	S	0.1	0.4	--	0.1	0.6	8.0	3.8	--	8.6	5.7	4.4	86	7	11
05N01295	43-76	Bt2	S	0.1	0.7	--	0.1	0.9	9.4	5.0	--	10.3	7.7	5.9	85	9	12
05N01296	76-117	Btgx1	S	tr	0.8	--	0.1	0.9	12.5	10.2	0.1	13.4	9.8	11.1	92	7	9
05N01297	117-165	Btgx2	S	tr	0.8	--	0.1	0.9	13.6	7.6	0.1	14.5	11.3	8.5	89	6	8
05N01298	165-203	Btg	S	0.2	1.1	--	0.1	1.4	18.0	10.1	--	19.4	14.5	11.5	88	7	10

Salt

Layer	Depth (cm)	Horz	Prep	-1- Ca (mmol(+) L-1)	-2- Mg (mmol(+) L-1)	-3- Na (mmol(+) L-1)	-4- K (mmol(+) L-1)	-5- CO_3 (mmol(-) L-1)	-6- HCO_3 (mmol(-) L-1)	-7- F (mmol(-) L-1)	-8- Cl (mmol(-) L-1)	-9- PO_4 (mmol(-) L-1)	-10- Br (mmol(-) L-1)	-11- OAC (mmol(-) L-1)	-12- SO_4 (mmol(-) L-1)	-13- NO_2 (mmol(-) L-1)	-14- NO_3 (mmol(-) L-1)	-15- H_2O (mmol(-) L-1)	-16- Total Salts (%)	-17- Elec Cond (dS m-1)	-18- Pred Elec Cond (dS m-1)	-19- Exch Na (%)	-20- SAR
05N01292	0-8	A	S																			--	
05N01293	8-18	E	S																			--	
05N01294	18-43	Bt1	S																			--	
05N01295	43-76	Bt2	S																			--	
05N01296	76-117	Btgx1	S																			--	
05N01297	117-165	Btgx2	S																			--	
05N01298	165-203	Btg	S																			--	

pH & Carbonates

Layer	Depth (cm)	Horz	Prep	-1- pH KCl	-2- pH $CaCl_2$ 0.01M 1:2 4C1a2a	-3- pH H_2O 1:1 4C1a2a	-4- pH Sat Paste	-5- Gypsum Sulf	-6- Gypsum NaF	-7- Carbonate As $CaCO_3$ <2mm (%)	-8- Carbonate As $CaCO_3$ <20mm (%)	-9- Gypsum As $CaSO_4*2H_2O$ <2mm (%)	-10- Gypsum As $CaSO_4*2H_2O$ <20mm (%)	-11- Resist ohms cm-1
05N01292	0-8	A	S		3.9	4.6								
05N01293	8-18	E	S		4.1	4.8								
05N01294	18-43	Bt1	S		3.8	4.6								
05N01295	43-76	Bt2	S		3.8	4.6								
05N01296	76-117	Btgx1	S		3.7	4.6								
05N01297	117-165	Btgx2	S		3.7	4.6								
05N01298	165-203	Btg	S		3.5	4.5								

Table 30a.--Physical and Chemical Analyses of Selected Soils (Part 1)--Continued

Clay Mineralogy (<.002 mm)				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-
				X-Ray					Thermal				Elemental							EGME	Inter
													SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	K_2O	Na_2O	Retn	preta
	Depth		Fract	7A1a1																	tion
Layer	(cm)	Horz	ion	(----------peak size---------)					(----------%----------)				(----------%----------)							mg g^{-1}	
05N01294	18-43	Bt1	tcly	KK 3	VR 2	MM 1	MI 1	LE 1													CMIX
				GE 1	QZ 1																
05N01296	76-117	Btgx1	tcly	KK 3	VR 2	MM 1	MI 1	GE 1													CMIX
				QZ 1																	
05N01297	117-165	Btgx2	tcly	KK 3	MT 2	VR 2	MI 1	QZ 1													CMIX
				GE 1																	

FRACTION INTERPRETATION:

tcly - Total Clay, <0.002 mm

MINERAL INTERPRETATION:

GE - Goethite KK - Kaolinite LE - Lepidocrocite MI - Mica MM - Montmorillonite-Mica

MT - Montmorillonite QZ - Quartz VR - Vermiculite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

INTERPRETATION (BY HORIZON):
CMIX - Mixed Clay

Table 30b.--Physical and Chemical Analyses of Selected Soils (Part 2)

*** Primary Characterization Data ***

Pedon ID: S04AR-053-006 (Grant, Arkansas) Print Date: Jan 23 2008 8:22PM

Sampled as : Warnock; Fine-loamy, siliceous, semiactive, thermic Typic Paleudult
Revised to :

SSL - Project C2005USAR043 Grant Co.
- Site ID S04AR-053-006 Lat: 34° 10′ 43.90″ north Long: 92° 17′ 50.00″ west NAD83
- Pedon No. 05N0217
- General Methods 1B1A, 2A1, 2B

United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Soil Survey Laboratory
Lincoln, Nebraska 68508-3866

Layer	Horizon	Orig Hzn	Depth (cm)	Field Label 1	Field Label 2	Field Label 3	Field Texture	Lab Texture
05N01283	A		0-18	S04AR-053-006-1				SIL
05N01284	E		18-25	S04AR-053-006-2				SIL
05N01285	BE		25-36	S04AR-053-006-3				SIL
05N01286	Bt1		36-61	S04AR-053-006-4				SIL
05N01287	Bt2		61-81	S04AR-053-006-5				SIL
05N01288	Btx1		81-107	S04AR-053-006-6				SIL
05N01289	Btx2		107-155	S04AR-053-006-7				SIL
05N01290	Btgx2		155-183	S04AR-053-006-8				SIL
05N01291	Btx		183-203	S04AR-053-006-9				SIL

Pedon Calculations

Calculation Name	Result	Units of Measure
LE, Whole Soil, Summed to 1m	1	cm/m

PSDA & Rock Fragments

Layer	Depth (cm)	Horz	Prep	Clay < .002	Silt .002 -.05	Sand .05 -2	Fine < .0002	CO_3 < .002	Fine .002 -.02	Coarse .02 -.05	VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	2 -5	5 -20	20 -75	.1-75	>2 mm wt % whole soil
				(------Total------)			(---Clay---)		(---Silt---)		(------------Sand------------)					(----Rock Fragments: mm---)				
				(----------% of <2mm Mineral Soil----------)												(--Weight--)				(--------% of <75mm--------)	
				3A1a1a			3A1a1a		3A1a1a		3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a					
05N01283	0-18	A	S	6.4	64.1	29.5	3.6		32.0	32.1	11.6	15.1	2.4	0.3	0.1	2	1	--	20	3
05N01284	18-25	E	S	6.4	65.7	27.9	3.7		33.7	32.0	11.7	13.3	2.0	0.7	0.2	tr	tr	--	16	tr
05N01285	25-36	BE	S	10.3	62.9	26.8	6.4		33.2	29.7	11.2	12.5	1.7	0.6	0.8	tr	tr	--	16	tr
05N01286	36-61	Bt1	S	19.1	56.0	24.9	13.4		29.7	26.3	10.6	11.6	1.8	0.5	0.4	tr	tr	--	14	1
05N01287	61-81	Bt2	S	19.4	56.4	24.2	14.2		28.8	27.6	10.5	11.2	1.9	0.3	0.3	tr	tr	--	14	tr
05N01288	81-107	Btx1	S	18.1	55.9	26.0	14.1		26.6	29.3	14.0	9.4	1.7	0.5	0.4	2	tr	--	14	2
05N01289	107-155	Btx2	S	19.0	55.7	25.3	15.2		26.6	29.1	11.4	11.9	1.4	0.3	0.3	tr	tr	--	14	tr
05N01290	155-183	Btgx2	S	21.5	54.5	24.0	16.1		26.5	28.0	11.7	10.4	1.5	0.3	0.1	tr	--	--	12	tr
05N01291	183-203	Btx	S	20.8	55.7	23.5	16.1		28.0	27.7	10.6	11.6	1.1	0.1	0.1	tr	tr	--	13	tr

Bulk Density & Moisture

Layer	Depth (cm)	Horz	Prep	(Bulk Density) 33 kPa	Oven Dry	Cole Whole Soil	(Water Content) 6 kPa	10 kPa	33 kPa	1500 kPa	1500 kPa Moist	Ratio AD/OD	WRD Whole Soil	Aggst Stabl 2-0.5mm	(--Ratio/Clay-) CEC7	1500 kPa
				(---g cm-3-1--)			(----------% of < 2mm----------)						$cm^3\ cm^{-3}$	%		
				DbWR1	DbWR1				DbWR1	3C2a1a		3D1				
05N01283	0-18	A	S	1.17	1.20	0.008			22.1	6.2		1.010	0.18		1.52	0.97
05N01284	18-25	E	S	1.56	1.58	0.004			19.2	3.4		1.004	0.25		0.50	0.53
05N01285	25-36	BE	S	1.68	1.70	0.004			15.9	4.2		1.004	0.20		0.30	0.41
05N01286	36-61	Bt1	S	1.60	1.67	0.014			18.8	7.8		1.008	0.18		0.34	0.41
05N01287	61-81	Bt2	S	1.49	1.55	0.013			20.3	7.9		1.009	0.18		0.36	0.41
05N01288	81-107	Btx1	S	1.63	1.68	0.010			17.0	7.5		1.008	0.15		0.34	0.41
05N01289	107-155	Btx2	S	1.61	1.67	0.012			18.1	7.6		1.008	0.17		0.37	0.40
05N01290	155-183	Btgx2	S	1.62	1.70	0.016			18.7	8.7		1.009	0.16		0.36	0.40
05N01291	183-203	Btx	S	1.65	1.74	0.018			17.3	8.1		1.009	0.15		0.38	0.39

Table 30b.--Physical and Chemical Analyses of Selected Soils (Part 2)--Continued

Carbon & Extractions				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-
				(------Total-----)			Org	C/N	(--Dith-Cit Ext--)			(----Ammonium Oxalate Extraction---)						(---Na Pyro-Phosphate--)			
Layer	Depth (cm)	Horz	Prep	C	N	S	C	Ratio	Fe	Al	Mn	Al+½Fe	ODOE	Fe	Al	Si	Mn	C	Fe	Al	Mn
				(-----% of < 2 mm------)					(----------% of < 2 mm----------)								mg kg-1	(------% of < 2 mm-----)			
				4H2a	4H2a	4H2a															
05N01283	0-18	A	S	3.73	0.167	0.01		22													
05N01284	18-25	E	S	0.71	0.024	--		29													
05N01285	25-36	BE	S	0.22	0.009	--		24													
05N01286	36-61	Bt1	S	0.18	0.034	--		5													
05N01287	61-81	Bt2	S	0.13	0.021	--		6													
05N01288	81-107	Btx1	S	0.08	0.001	--		84													
05N01289	107-155	Btx2	S	0.05	0.001	--		52													
05N01290	155-183	Btgx2	S	0.06	0.005	--		12													
05N01291	183-203	Btx	S	0.09	0.026	--		3													

CEC & Bases				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-
				(-----NH4OAC Extractable Bases----)								CEC8	CEC7	ECEC		(----Base---)	
								Sum	Acid-	Extr	KCl	Sum	NH_4	Bases	Al	(Saturation)	
Layer	Depth (cm)	Horz	Prep	Ca	Mg	Na	K	Bases	ity	Al	Mn	Cats	OAC	+Al	Sat	Sum	NH_4OAC
				(----------cmol(+) kg-1----------)							mg kg-1	(----cmol(+) kg-1---)				(---------%---------)	
				4B1a1a	4B1a1a	4B1a1a	4B1a1a		4B2b1a1	4B3a1a	4B3a1a		4B1a1a				
05N01283	0-18	A	S	8.1	0.9	--	0.2	9.2	11.3			20.5	9.7			45	95
05N01284	18-25	E	S	--	tr	--	0.1	0.1	5.9	1.1	1.4	6.0	3.2	1.2	92	2	3
05N01285	25-36	BE	S	tr	0.2	--	0.1	0.3	4.9	1.6	1.1	5.2	3.1	1.9	84	6	10
05N01286	36-61	Bt1	S	0.1	1.0	--	0.2	1.3	7.9	3.1	0.1	9.2	6.4	4.4	70	14	20
05N01287	61-81	Bt2	S	0.1	0.9	--	0.2	1.2	8.6	3.8	--	9.8	6.9	5.0	76	12	17
05N01288	81-107	Btx1	S	tr	0.8	--	0.1	0.9	7.7	3.3	--	8.6	6.2	4.2	79	10	15
05N01289	107-155	Btx2	S	--	0.6	--	0.1	0.7	7.6	3.6	--	8.3	7.0	4.3	84	8	10
05N01290	155-183	Btgx2	S	--	0.5	--	0.1	0.6	9.1	5.2	--	9.7	7.7	5.8	90	6	8
05N01291	183-203	Btx	S	--	0.6	--	0.1	0.7	9.1	5.6	--	9.8	7.9	6.3	89	7	9

Salt				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
				(----------Water Extracted From Saturated Paste----------)																	Pred		
																			Total	Elec	Elec	Exch	
Layer	Depth (cm)	Horz	Prep	Ca	Mg	Na	K	CO_3	HCO_3	F	Cl	PO_4	Br	OAC	SO_4	NO_2	NO_3	H_2O	Salts	Cond	Cond	Na	SAR
				(----mmol(+) L-1----)				(----------mmol(-) L-1----------)										(-----%---)		(--dS m-1-)	%	
05N01283	0-18	A	S																			--	
05N01284	18-25	E	S																			--	
05N01285	25-36	BE	S																			--	
05N01286	36-61	Bt1	S																			--	
05N01287	61-81	Bt2	S																			--	
05N01288	81-107	Btx1	S																			--	
05N01289	107-155	Btx2	S																			--	
05N01290	155-183	Btgx2	S																			--	
05N01291	183-203	Btx	S																			--	

Table 30b.--Physical and Chemical Analyses of Selected Soils (Part 2)--Continued

pH & Carbonates				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-
				(pH)						(Carbonate)		(Gypsum)		
Layer	Depth (cm)	Horz	Prep	KCl	$CaCl_2$ 0.01M 1:2 4C1a2a	H_2O 1:1 4C1a2a	Sat Paste	Sulf	NaF	As $CaCO_3$ <2mm (%)	As $CaCO_3$ <20mm (%)	As $CaSO_4*2H_2O$ <2mm (%)	As $CaSO_4*2H_2O$ <20mm (%)	Resist ohms cm^{-1}
05N01283	0-18	A	S		5.8	6.0								
05N01284	18-25	E	S		4.3	4.8								
05N01285	25-36	BE	S		4.1	4.8								
05N01286	36-61	Bt1	S		4.0	4.9								
05N01287	61-81	Bt2	S		4.0	4.8								
05N01288	81-107	Btx1	S		4.0	4.8								
05N01289	107-155	Btx2	S		4.0	4.9								
05N01290	155-183	Btgx2	S		3.9	4.7								
05N01291	183-203	Btx	S		3.8	4.7								

Clay Mineralogy (<.002 mm)				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-
				X-Ray					Thermal				Elemental							EGME	Interpretation
													SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	K_2O	Na_2O		
Layer	Depth (cm)	Horz	Fraction	7A1a1 peak size									(%)							mg g^{-1}	
05N01283	0-18	A	tcly	VR 2	KK 2	QZ 2	MI 1														VERM
05N01286	36-61	Bt1	tcly	KK 3	VR 2	MI 1	QZ 1	GE 1													CMIX
05N01288	81-107	Btx1	tcly	KK 3	VR 2	MI 1	QZ 1	GE 1													CMIX
05N01289	107-155	Btx2	tcly	KK 3	VR 2	MI 1	GE 1	QZ 1													CMIX
05N01291	183-203	Btx	tcly	KK 3	VR 2	MI 1	GE 1	QZ 1													CMIX

FRACTION INTERPRETATION:

tcly - Total Clay, <0.002 mm

MINERAL INTERPRETATION:

GE - Goethite KK - Kaolinite MI - Mica QZ - Quartz VR - Vermiculite

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

INTERPRETATION (BY HORIZON):

CMIX - Mixed Clay VERM - Vermiculitic

Table 30c.--Physical and Chemical Analyses of Selected Soils (Part 3)

*** Primary Characterization Data ***

Pedon ID: S04AR-053-001 (Grant, Arkansas) Print Date: Jan 23 2008 8:25PM

Sampled as : Adaton; Fine-silty, mixed, active, thermic Typic Endoaqualf
Revised to :

SSL - Project R2004USAR192 Adaton - series
- Site ID S04AR-053-001 Lat: 34° 15' 21.60" north Long: 92° 19' 44.20" west NAD83
- Pedon No. 04N1117
- General Methods 1B1A, 2A1, 2B

United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Soil Survey Laboratory
Lincoln, Nebraska 68508-3866

Layer	Horizon	Orig Hzn	Depth (cm)	Field Label 1	Field Label 2	Field Label 3	Field Texture	Lab Texture
04N06519	Btg3		135	S04AR-053-001-1	GRAB SAMPLE			SICL

PSDA & Rock Fragments

Layer	Depth (cm)	Horz	Prep	Clay < .002	Silt .002 -.05	Sand .05 -2	Fine < .0002	CO_3 < .002	Fine .002 -.02	Coarse .02 -.05	VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	2 -5	5 -20	(--Weight--) 20 -75	.1- 75	>2 mm wt % whole soil
				(% of <2mm Mineral Soil)												(% of <75mm)				
				3A1a1a					3A1a1a		3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a					
04N06519	135	Btg3	S	31.5	51.5	17.0			31.0	20.5	9.1	7.2	0.3	0.2	0.2	2	3	--	13	5

Bulk Density & Moisture

Layer	Depth (cm)	Horz	Prep	(Bulk Density) 33 kPa Oven Dry	Cole Whole Soil	(Water Content) 6 kPa	10 kPa	33 kPa	1500 kPa	1500 kPa Moist	Ratio AD/OD	WRD Whole Soil	Aggst Stabl 2-0.5mm	(--Ratio/Clay-) CEC7	1500 kPa
				(---g cm-3---)		(% of < 2mm)						$cm^3\ cm^{-3}$	%		
									3C2a1a		3D1				
04N06519	135	Btg3	S						13.7		1.027			0.60	0.43

Carbon & Extractions

Layer	Depth (cm)	Horz	Prep	(Total) C	N	S	Org C	C/N Ratio	(Dith-Cit Ext) Fe	Al	Mn	(Ammonium Oxalate Extraction) Al+½Fe	ODOE	Fe	Al	Si	Mn	(Na Pyro-Phosphate) C	Fe	Al	Mn
				(% of < 2 mm)					(% of < 2 mm)								$mg\ kg^{-1}$	(% of < 2 mm)			
				4H2a	4H2a	4H2a															
04N06519	135	Btg3	S	0.23	0.041	0.01		6													

CEC & Bases

Layer	Depth (cm)	Horz	Prep	(NH4OAC Extractable Bases) Ca	Mg	Na	K	Sum Bases	Acidity	Extr Al	KCl Mn	CEC8 Sum Cats	CEC7 NH_4 OAC	ECEC Bases +Al	Al Sat	(Base Saturation) Sum	NH_4OAC
				(cmol(+) kg-1)							$mg\ kg^{-1}$	(cmol(+) kg-1)				(%)	
				4B1a1a	4B1a1a	4B1a1a	4B1a1a		4B2b1a1	4B3a1a	4B3a1a		4B1a1a				
04N06519	135	Btg3	S	0.9	1.6	--	0.2	2.7	18.8	11.3	--	21.5	18.9	14.0	81	13	14

Table 30c.--Physical and Chemical Analyses of Selected Soils (Part 3)--Continued

Salt				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-	-19-	-20-
				(----------Water Extracted From Saturated Paste----------																			
Layer	Depth (cm)	Horz	Prep	Ca	Mg	Na	K	CO_3	HCO_3	F	Cl	PO_4	Br	OAC	SO_4	NO_2	NO_3	H_2O	Total Salts	Elec Cond	Pred Elec Cond	Exch Na	SAR
				(----mmol(+) L-1----)				(----------mmol(-) L-1----------										)	(-----%---)	(--dS	m-1-)	%	
04N06519	135	Btg3	S																			--	

pH & Carbonates				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-
				(----------pH----------						(--Carbonate-)		(--Gypsum--)		
Layer	Depth (cm)	Horz	Prep	KCl	$CaCl_2$ 0.01M 1:2 4C1a2a	H_2O 1:1 4C1a2a	Sat Paste	Sulf	NaF	As $CaCO_3$ <2mm	<20mm	As $CaSO_4*2H_2O$ <2mm	<20mm	Resist ohms cm^{-1}
										(----------%----------				)
04N06519	135	Btg3	S		3.5	4.5								

Table 30d.--Physical and Chemical Analyses of Selected Soils (Part 4)

*** Primary Characterization Data ***

Pedon ID: S03AR-053-046 (Grant, Arkansas) Print Date: Jan 23 2008 8:26PM

Sampled as on Jul 15, 2003 : Una; Fine, mixed, active, acid, thermic Typic Epiaquept
Revised to :

SSL - Project R2003USAR167 GRANT CO.
- Site ID S03AR-053-046 Lat: 34°11'49.70" north Long: 92°33'59.30" west NAD83 MLRA:133B
- Pedon No. 03N1031
- General Methods 1B1A, 2A1, 2B

United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Soil Survey Laboratory
Lincoln, Nebraska 68508-3866

Layer	Horizon	Orig Hzn	Depth (cm)	Field Label 1	Field Label 2	Field Label 3	Field Texture	Lab Texture
03N05260	Bg2		30-56	S03AR-053-046-1			SICL	SICL
03N05261	Bg2/Bg3		59-89	S03AR-053-046-2			SIC	SICL

PSDA & Rock Fragments

Layer	Depth (cm)	Horz	Prep	Clay (<.002)	Silt (.002-.05)	Sand (.05-2)	Fine Sand (<.0002)	CO_3 (<.002)	Fine Silt (.002-.02)	Coarse Silt (.02-.05)	VF Sand (.05-.10)	F Sand (.10-.25)	M Sand (.25-.50)	C Sand (.5-1)	VC Sand (1-2)	2 (2-5)	5 (5-20)	20 (20-75)	.1-75 (Weight)	>2 mm wt % whole soil
				(------Total------)			(---Clay----		(---Silt---)		(-------------Sand-------------)					(----Rock Fragments: mm---)				
				(-------------------------% of <2mm Mineral Soil-------------------------)												(--------% of <75mm-------)				
				3A1a1a					3A1a1a		3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a					
03N05260	30-56	Bg2	S	35.9	47.1	17.0			33.4	13.7	8.0	7.6	1.3	0.1	--	--	--	--	9	--
03N05261	59-89	Bg2/Bg3	S	39.5	44.4	16.1			33.1	11.3	7.7	7.5	0.9	tr	tr	--	--	--	8	--

Bulk Density & Moisture

Layer	Depth (cm)	Horz	Prep	(Bulk Density) 33 kPa Oven Dry	Cole Whole Soil	(Water Content) 6 kPa	10 kPa	33 kPa	1500 kPa	1500 kPa Moist	WRD Ratio AD/OD	Aggst Whole Soil	Stabl 2-0.5mm	(--Ratio/Clay-) CEC7	1500 kPa
				(---g cm-3---)		(----------% of < 2mm----------)						$cm^3\ cm^{-3}$	%		
									3C2a1a		3D1				
03N05260	30-56	Bg2	S						14.3		1.025				0.40
03N05261	59-89	Bg2/Bg3	S						15.5		1.028				0.39

Carbon & Extractions

Layer	Depth (cm)	Horz	Prep	(Total) C	N	S	Org C	C/N Ratio	(Dith-Cit Ext) Fe	Al	Mn	(Ammonium Oxalate Extraction) Al+½Fe	ODOE	Fe	Al	Si	Mn	(Na Pyro-Phosphate) C	Fe	Al	Mn
				(------% of < 2 mm-----)					(----------% of < 2 mm----------)								$mg\ kg^{-1}$	(------% of < 2 mm-----)			
				4H2a	4H2a	4H2a															
03N05260	30-56	Bg2	S	0.31	0.082	--		4													
03N05261	59-89	Bg2/Bg3	S	0.22	0.042	--		5													

pH & Carbonates

Layer	Depth (cm)	Horz	Prep	(pH) KCl	$CaCl_2$ 0.01M 1:2 4C1a2a	H_2O 1:1 4C1a2a	Sat Paste	Sulf	NaF	(Carbonate) As $CaCO_3$ <2mm	<20mm	(Gypsum) As $CaSO_4*2H_2O$ <2mm	<20mm	Resist ohms cm^{-1}
										(----------%----------)				
03N05260	30-56	Bg2	S		3.8	4.5								
03N05261	59-89	Bg2/Bg3	S		3.8	4.4								

Table 31.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Adaton	Fine-silty, mixed, active, thermic Typic Endoaqualfs
Amy	Fine-silty, siliceous, semiactive, thermic Typic Endoaquults
Bibb	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Gurdon	Coarse-silty, siliceous, semiactive, thermic Aquic Paleudults
Guyton	Fine-silty, siliceous, active, thermic Typic Glossaqualfs
Ouachita	Fine-silty, siliceous, active, thermic Fluventic Dystrudepts
Pikeville	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Rosalie	Loamy, siliceous, active, thermic Arenic Paleudults
Sacul	Fine, mixed, active, thermic Aquic Hapludults
Saffell	Loamy-skeletal, siliceous, semiactive, thermic Typic Hapludults
Sardis	Fine-silty, siliceous, active, thermic Fluvaquentic Dystrudepts
Sawyer	Fine-silty, siliceous, semiactive, thermic Aquic Paleudults
Smithton	Coarse-loamy, siliceous, semiactive, thermic Typic Paleaquults
Stough	Coarse-loamy, siliceous, semiactive, thermic Fragiaquic Paleudults
Una	Fine, mixed, active, acid, thermic Typic Epiaquepts
Urbo	Fine, mixed, active, acid, thermic Vertic Epiaquepts
Warnock	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Wilcox	Very-fine, smectitic, thermic Chromic Dystruderts

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